

# The Canadian Builder

## :: and Carpenter ::

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LIMITED

Vol. 3

TORONTO, FEBRUARY, 1913

No. 2

## A Few Door Pointers

**T**here are several points in the Construction of Veneered Doors which are not visible when the door is finished, but which are of most vital importance to its life and strength.

First, and of probably most import, is the dryness of materials used.

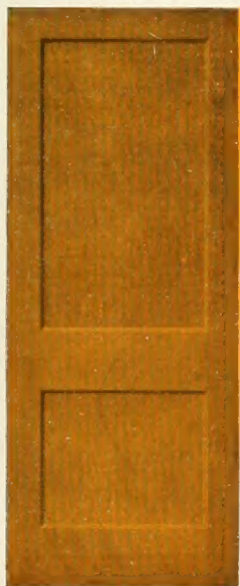
Secondly, the construction of the cores, which should be joined with locked core to insure against any defect in the glue, which by the way is one of the weakest points in any veneered work.

Thirdly, all panels should be laminated to prevent warping and splitting as much as possible.

These three points are the most important and are found, along with many others, in our high grade doors which we are offering, and we only ask an opportunity to ship you some of our stock and let you be the judge.

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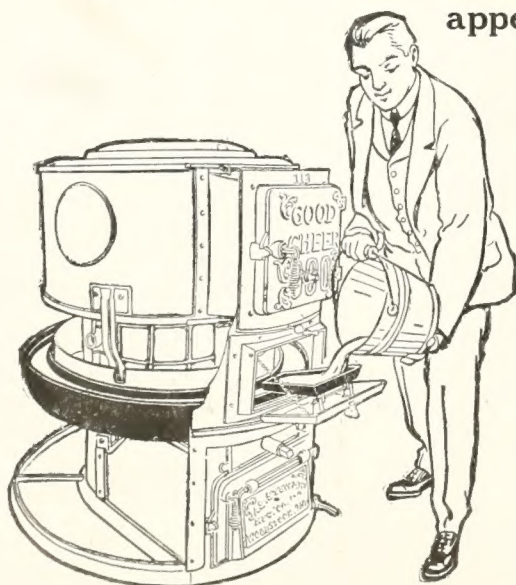
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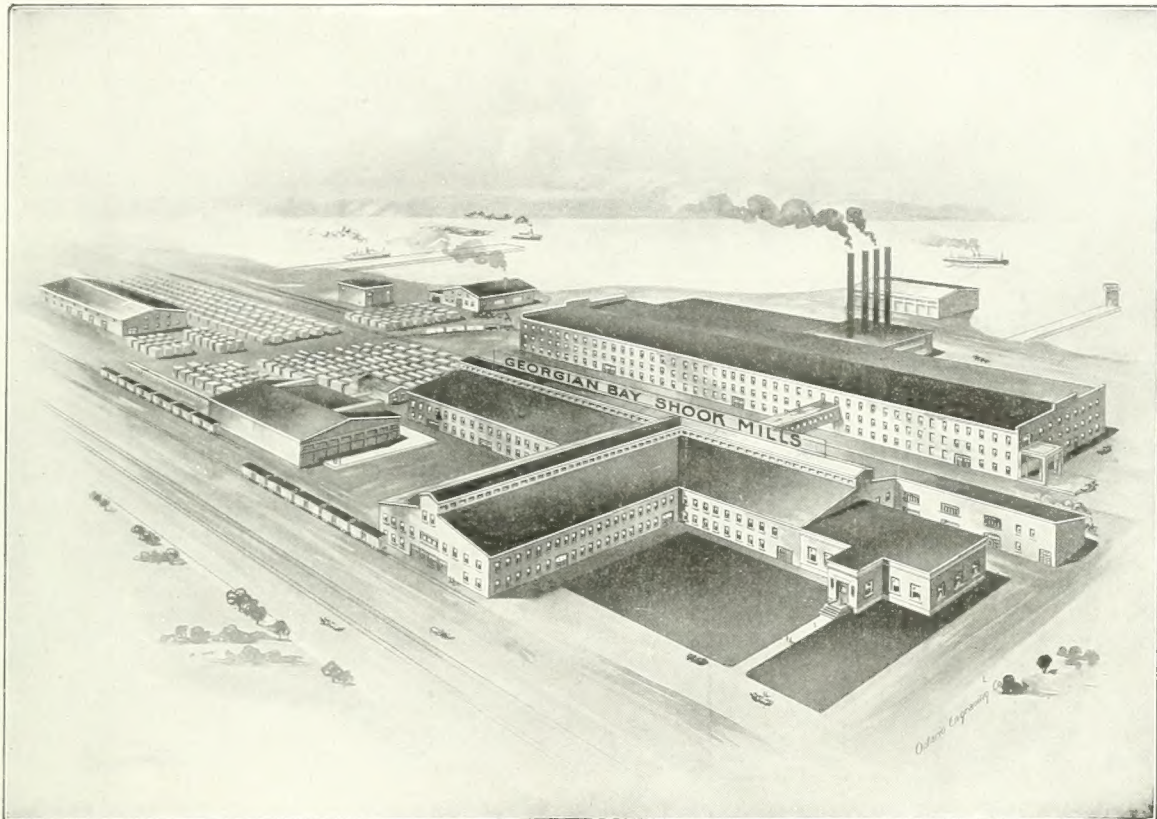
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## THE JAMES STEWART MFG. CO., LIMITED

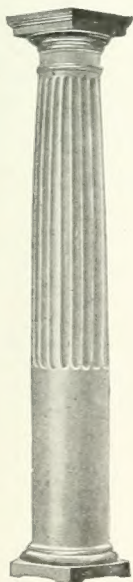
Woodstock, Ont. :: Winnipeg, Man.



# Midland Planing Mill Products



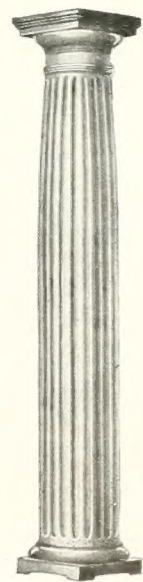
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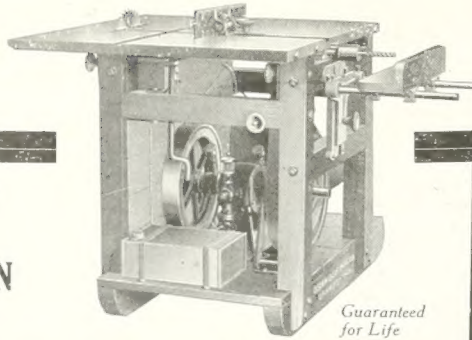
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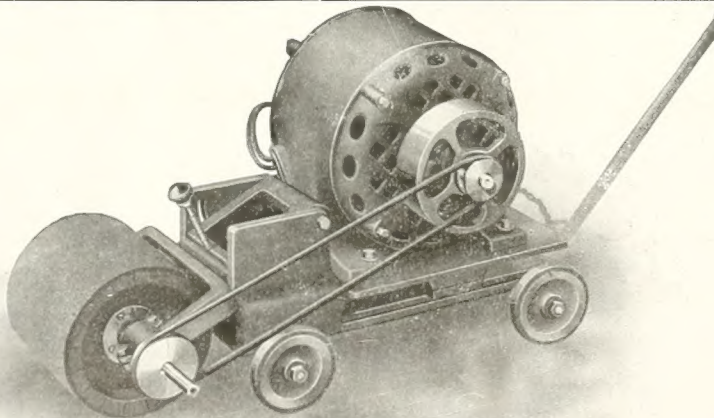
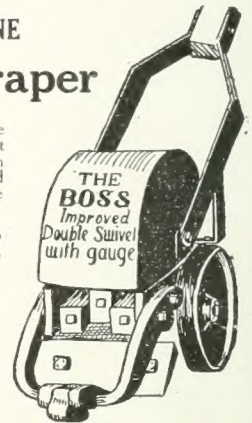
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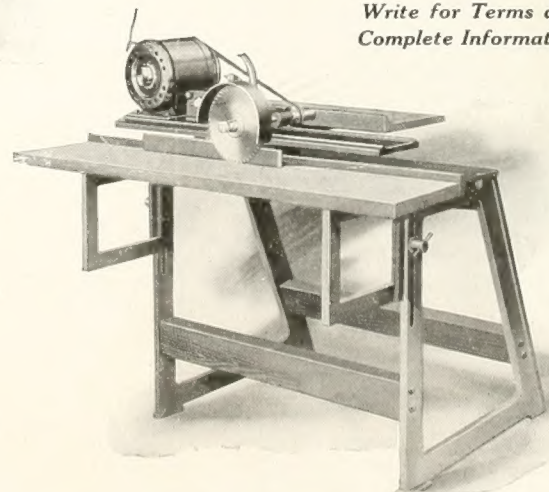
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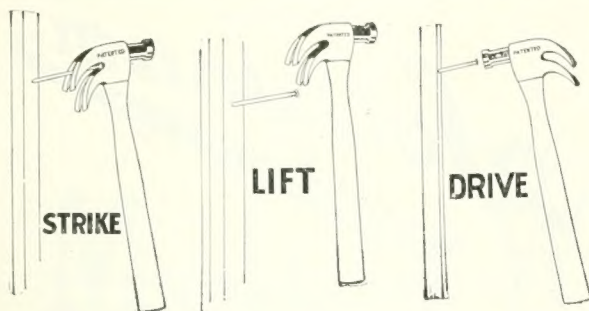


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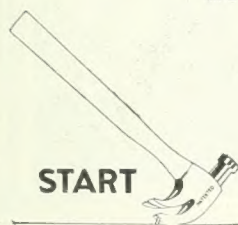




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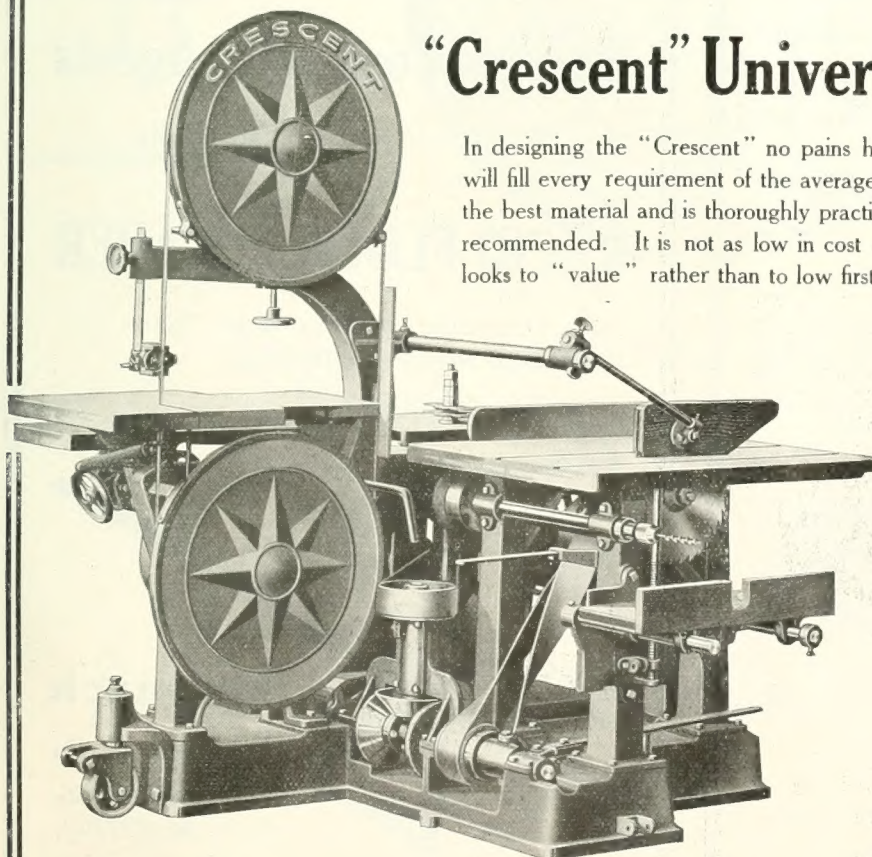
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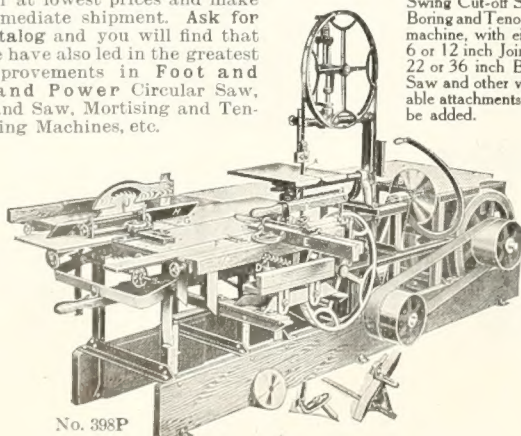


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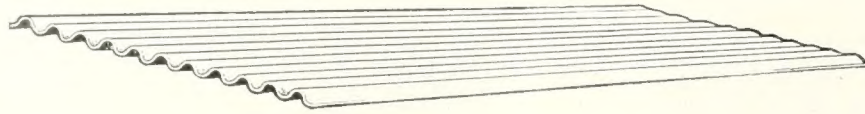
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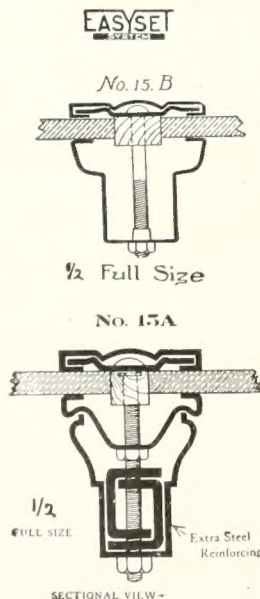
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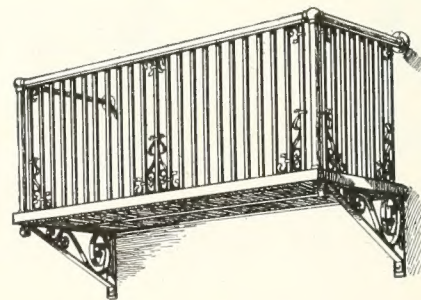
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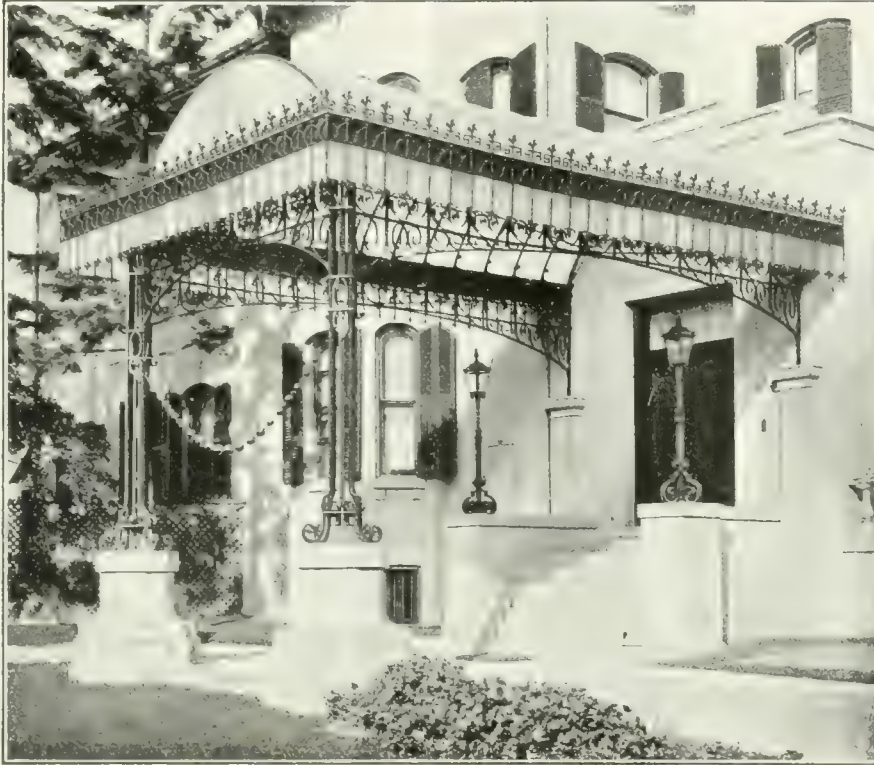
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**No Experiment**



*A machine sent to you FREE.  
No expense or obligation attached*

**Hurley Machine Co., Limited**  
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Elevation of six-room house, finished in hardwood at a cost of \$3,500

## A Six Room House with Hardwood Floors and Trim, and Many Conveniences

*Builder: F. Waite, Toronto*

*By G. C. Keith*

WE take pleasure this month in presenting to readers of *The Canadian Builder*, photographs and plans of a moderate-price, six-room, semi-detached house, neatly finished with hardwood floors and trim, and containing many conveniences, erected for Mr. and Mrs. E. A. Drury, 45 Moutray Street, Toronto. An inspection of the floor plans shows there is no waste room, and that all rooms are large, well lighted and ventilated.

There is a verandah of good size at the front entrance. The front door opens into a lobby, but the coat room entrance is from the stair landing instead of from the vestibule, as is often the case. An arch with curtain leads to the coatroom. It is therefore kept warm, and coats and hats are therefore kept warm, also. In the coat closet is a small leaded window looking out on the verandah. There is also a leaded window at the stair landing.

An arch with stencilled curtains leads to the living room, which is finished in chintz. A feature of the living room is the fireplace built in a simple design. The front is plain with the merest suggestion of two pillars, one at each side of the fireplace proper. A Roman brick of buff color is used and the fireplace is equipped with an ash chute by which the ashes are dropped to the basement without any handling. This room, as well as the dining room and hall, have hardwood floors laid on top of an under diagonal floor. At each side of the fireplace are beaten brass electric light fixtures, and in the centre is a four light beaten brass electrolier to match.

A curtained arch connects the living and dining rooms. The latter is panelled in golden brown burlap and ash strips and plate rail. There is also a false beamed ceiling as shown by the dotted lines in the plan. The buffet, table, chairs, and other furnishings of the dining room are fumed oak, which harmonize with the stained ash woodwork.

The kitchen is larger than is ordinarily found in a six-room house, it being about 13 x 9 feet. This space

is made possible by having the stair to the basement in the outside back lobby, and utilizing the space under the stairs to the upper floor, for cupboards. These cupboards extend from floor to ceiling and are deep enough to hold a large dinner plate. They have sliding doors so that no doors open out over the stove nearby. A kitchen cabinet, table, etc., complete the kitchen equipment. When the wiring was done provision was made for an electric iron by having a socket placed flush with the wall. The wall is covered to about thirty inches above the base board with Sanitos.

As stated, the basement is reached through the rear lobby. At the left of the door and over the basement stairs is a food cupboard with shelves. This lobby is sheeted with T. & G. lumber and tar paper.

In the basement is another combination fruit cupboard, with screen doors on top for food and solid doors below for storage of preserved fruits, etc.

A laundry containing stationary tubs and other necessary equipment, is partitioned off from the rest of the basement. A gas heater is connected up with the hot water boiler. The house is heated with hot air, and an Empire King furnace, made by Canadian Heating and Ventilating Co., Owen Sound, has been installed. The house is built of buff brick on concrete footings.

### The Bedroom Floor.

The hardwood stair leads to a convenient hall where there is sufficient room, but not any waste space. A feature of this floor is the number of large useful cupboards. In the hall is located the linen closet and there is one in each room, as may be seen from the plans. The hall light is worked by a three-way switch and may be turned on or off upstairs or downstairs.

The sewing room and the hall have hardwood floors, the two bedrooms being carpeted. To allow for headroom over the stair, the floor of the closet in the sewing room is raised about one foot.

Space has been taken from the front bedroom for the two closets for the two bedrooms. The arrange-



ment has proved to be very convenient. In the sewing room a drop light is used, while in the bedrooms lights have been arranged beside the dressers and above the beds.

Galvanized iron corners are used under plaster on exposed plaster corners, thus effectually preventing chipping of corners.

The bathroom contains the usual three-piece set. The mirror is in the front of the medicine chest which is conveniently built in the wall, as shown in the plan.

The house is semi-detached with a frontage of 22 feet 6 inches, and a rear entrance of 2 feet 6 inches.

The cost of the house was \$3,500 made up of an original price of \$3,250 for house and land, and the following extras: Mantle in living room, \$40; stationary laundry tubs, \$25; oak stair, oak floors, ash trim and ash doors in the house proper, and laundry partitions and combination fruit excavations and plans were changed to cupboard in the basement, \$175. The house was bought before starting to suit purchasers.

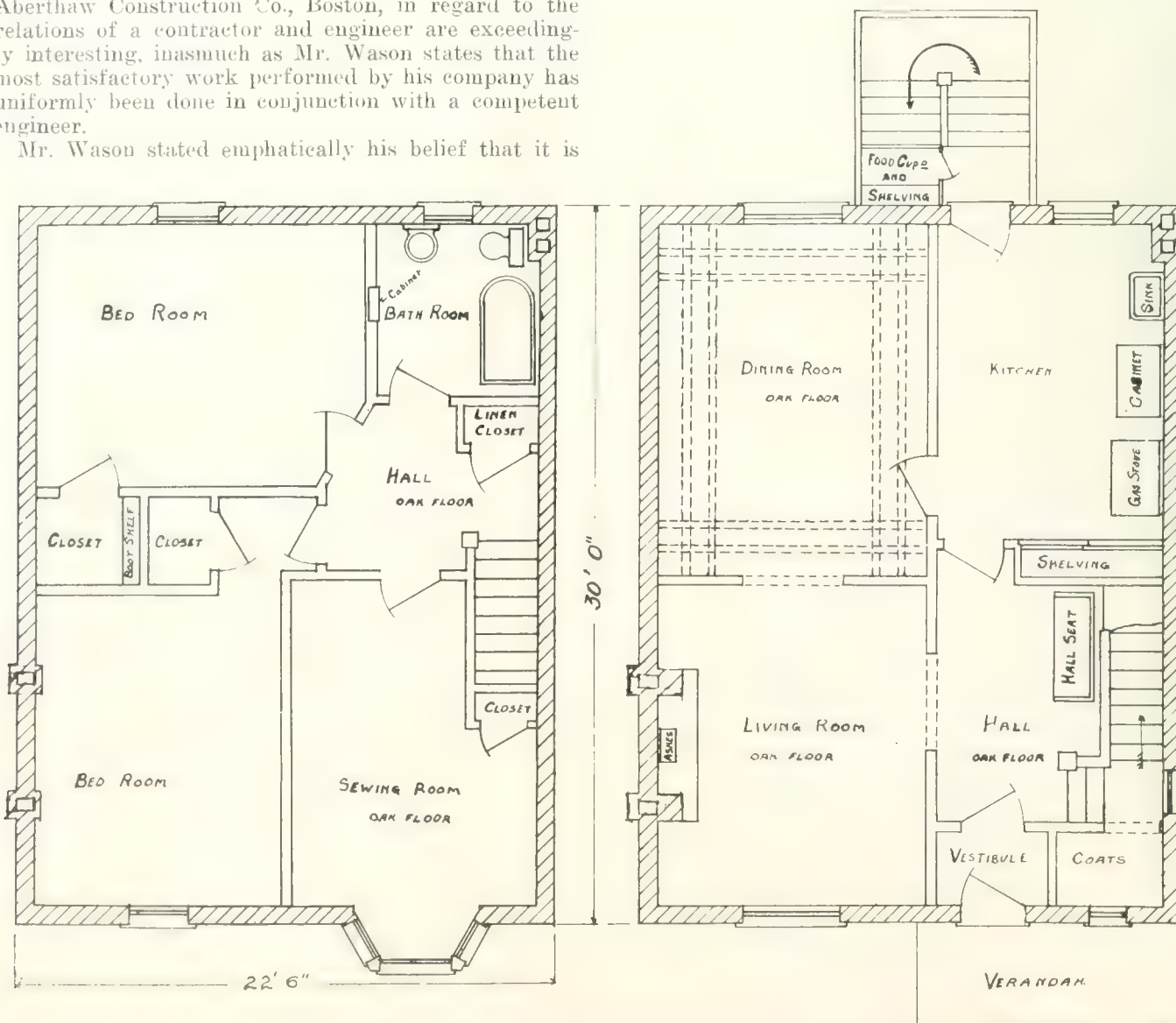
### The Co-operation of Engineer and Contractor Produces the Best Work

The remarks of Leonard C. Wason, president of the Aberthaw Construction Co., Boston, in regard to the relations of a contractor and engineer are exceedingly interesting, inasmuch as Mr. Wason states that the most satisfactory work performed by his company has uniformly been done in conjunction with a competent engineer.

Mr. Wason stated emphatically his belief that it is

economy for any owner to employ a first-class engineer, however good the building outfit may be, and however well the owner may understand the requirements of his processes. A really first-class engineer will add ideas gathered from his general experience; will understand not only the requirements of the processes, but will add the details which go to make up the complete economical plant.

The process man looks at the building as part of the housing of his machinery. The building outfit looks mainly to the building as a piece of structural work. The competent engineer grasps the whole problem, and does not overemphasize one thing or slight another. The habit of going to contracting firms specializing in some material and getting them to design the structural end of the job is likely to produce a one-sided design, and the owner should have some one who is competent to judge the details, and who is not directly financially interested in a material or any particular method of handling. One might at times feel alarmed at the size of the drug bills if one's doctor owned the drug store. An owner oftentimes needs competent, disinterested advice as to saving money on details, as well as spending it on details.



Plan of ground and first floors of six room house erected for Mr. and Mrs. Drury.



## Views in Six Room House Showing Some Interesting Features

Living Room, showing fire-place of neat design.



Dining Room showing panelling. Color scheme is Golden Brown.

Kitchen showing arrangement of cabinet, gas stove and built-in cup-board.





## City Planning Commission, Calgary

At the annual meeting of the Calgary City Planning Commission, the following officers and characters of committees were present: Honorary President, Mayor Sinnott; President, William Pearce; Vice-Presidents, A. Price, Dr. McRae; Secretary-Treasurer, G. W. Lemon. Housing Committee, Major Wolley Dod; Arts and Building, Ald. Garden; Traffic and Transportation, G. M. Lamm; Parks and Boulevards, Harold Riley; Drafting, A. Fordyce; Legislation, C. T. Jones; Publicity, L. M. Gotch.

On the motion of C. T. Jones, the Commission passed a resolution urging the province to pass a city planning act modeled on the British town planning act, and similar to that adopted by Nova Scotia and New Brunswick.

Major Wolley Dod reported on the work of sanitation and housing and referred to the satisfactory changes made in the building by-law. The people themselves were building better houses with more wholesome conditions.

The report of the secretary, read by Mr. Lemon himself was very complete. He threw out a few hints as to what the several committees of the commission might tackle for 1913. He advocated a plan to provide public lawn tennis courts on vacant lots or city-owned property. He suggested a movement to have the city build a swimming pavilion and the providing of boating privileges in connection with our river-front development. Among the other suggestions were: Diagonal thoroughfares to relieve the traffic congestion in the down-town districts and the introduction of such streets in the unsubdivided area about Calgary; a garden city movement, or a municipal housing scheme, to solve the problem of the lack of houses for rent, which dearth makes for congestion and consequent unwholesome home conditions; and the ventilation of and an adequate system for disinfecting street cars.

Among the things accomplished by the city planning commission, Mr. Lemon emphasized the provisions in the new building code, which calls for a system of ventilation in all buildings, for a uniform building line which will stop the practice of "lot crowding," and the regulative clauses which will protect its parks and its river front from being disfigured with unsightly billboards.

Mr. Lemon showed that city planning does not mean burdening a city with debt, but it only means doing in an orderly, systematic, intelligent, and therefore economic way, what has to be done in every first rate city, and it does not aim to do it in the lump, as anyone who knows anything about town planning knows. It is a program to work towards steadily through the years, a goal upon which to fix the civic eye.

It has been recommended that Mr. Thomas G. Mawson, town planning expert, be employed to prepare a plan for a civic centre for Calgary.

## Building a City to Order

"Not the least interesting thing in our trip down the Fraser," says Frederick Foster, writing in February Canada Monthly, "is the way some of the new British Columbia towns are being constructed ready for a population that hasn't yet arrived, and steel that is still some dozens of miles to the eastward. As Ed. and I canoed down the Fraser, we saw one of these new towns in the making: with transit, chain and level, stream engineers were laying out the town of Willow River with scientific precision.

"The novelty of seeing a 'town being made to order' appealed so strongly that I sought the Chief Engineer.

"'You are standing on the corner of the two principal streets of the future town,' he told me. 'The stake on which you just knocked the ashes from your pipe, marks a lot which will be worth several thousands of dollars a year or so from now.'

"Then with a blue-print spread before us he launched into the subject.

"'Here, at the crossing of these two streets is where we are standing,' he explained. 'Four blocks down this way,' tracing the blue-print with his finger, 'will be the railway station and yards. This portion we are now surveying is the business portion only. When our work is finished, the plans must be registered at the Government offices, then the town is thrown open to settlement, or a better word is occupancy. For town building in Western Canada is much like skyscraper building in New York. Everything made ready for the tenants to move in. As it is the wish of the railway company to make this one of the leading towns of central British Columbia the completion of our work is being looked forward to by merchants, manufacturers, home-builders and investors, who are anxious to get in at the beginning.'

"'Then you think that some day here will stand a city?' I asked.

"'Yes, there are many reasons why a city should rise here. There are seven billion feet of timber in the immediate vicinity waiting to be manufactured into lumber. The Willow River is an ideal logging stream and the boats on the Fraser can distribute the lumber manufactured here throughout central British Columbia, while the railway will carry it to the prairies. One of the largest coal deposits in the world lies a short way southeast; the Peace River country of unlimited agricultural opportunities spreads to the north, and here at our door is an unlimited water power supply. So there you have it—manufacturing, mining, agricultural—a combination which puts cities on the map.'"

## Highest Brick Chimney in Canada

What is said to be the tallest radial brick chimney in the Dominion of Canada is located on Baptist's Island, Quebec. It is 250 feet high and its purpose is to serve the large boiler plant of a paper mill. The inside diameter at the top is 10 feet, the outside diameter at the bottom 20 feet 3 inches, and the inside diameter at the bottom 14 feet 5 inches. The radial bricks of which the chimney is constructed are perforated vertically, the perforations forming dead air cells which tend to prevent rapid heating and cooling of the walls of the chimney while at the same time preventing rapid radiation. The perforations also lighten the entire structure and effect quite a saving in connection with the foundations.

The chimney is lined with special radial brick for 60 feet, which prevents the hot flue gases from coming in contact with the interior walls of the chimney proper. The first 30 feet of the chimney is octagonal in shape and the balance of the height is round.

Making the factory floor of hardwood, perfectly smooth, then having the factory truck wheels turned on the face, is drawing it pretty fine, but that is what some modern institutions are doing. And they figure that it will pay; otherwise they wouldn't be doing it.





## A Roomy House of English Design

*Architect, A. Raymond Ellis*

This roomy house is comfortable and compact of English style, and was described in the *Woman's Home Companion*. The covered porch at the rear of the dining-room is planned more for an out-of-door summer dining-room than a piazza, although in winter it could be enclosed with glass, and used as a little conservatory or just as a sun parlor.

The recessed entrance at the front, under the heavy overhang of the second storey, affords ample protection in bad weather. Even a covered piazza does not give enough protection in bad weather to make its use possible, and in pleasant weather the unroofed tree-shaded terrace is both inviting and picturesque.

The French windows, besides being decorative, are very useful, and afford fine ventilation, particularly as they can be screened the same as any door. From the interior the view from a French window is more complete, and, to my mind, adds much that is wanting to the ordinary window view, to say nothing of the increased spaciousness and airiness such windows give.

Stucco as an exterior wall finish has proved very successful, and when combined with the dark-brown, half-timber work of the English style, becomes both attractive looking and enduring.

The plan of this house is very compact, and by

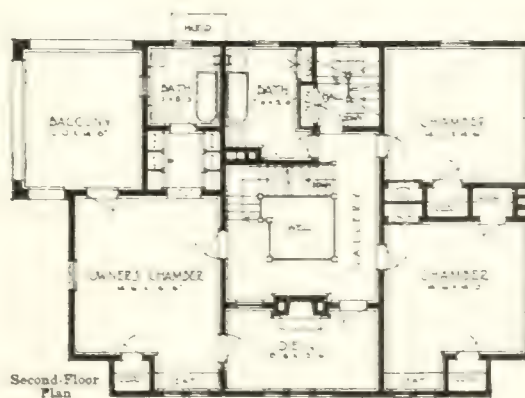
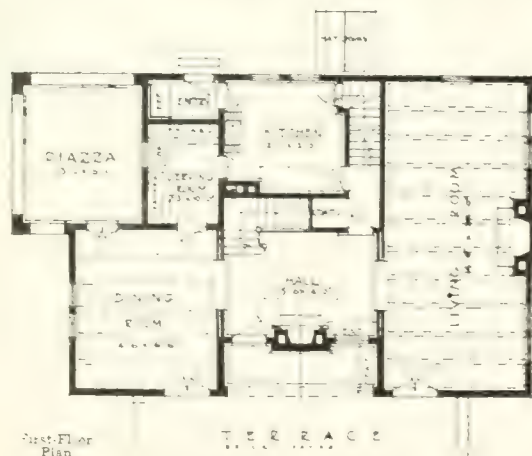
means of large openings with sliding glass doors from the hall to the living-room and dining-room a very spacious effect is obtained. Instead of the den and reception room—the latter, a useless feature in this type of house—the living-room is made unusually large to accommodate comfortably the family and its guests. A fireplace in the hall is an unusual feature which proves very useful in fall and spring to temper the air on chilly or damp days that always occur.

From the hall the main staircase leads to a gallery around the second floor. This is one of the principal features of the house, and it gives a splendid effect. From the ceiling above, an ornamental chandelier is suspended to hang as low as the second storey, illuminating softly the entire main hall and gallery. This gallery gives great opportunity to hang paintings, tapestries, or fine rugs, to exhibit their full beauty.

The kitchen, serving-room, and back stairs are compactly arranged in the rear of the main hall, and at the back open into a service yard.

On the second floor are two guest or family chambers with a bath, and the owner's suite, comprising a sitting-room or small library with a fireplace, a large chamber with an outdoor sleeping-porch, a dressing-room, and a bath.

In the attic are two servants' room with a bathroom,



Plans of house of English design.



and a large chamber that could be used as a playroom or billiard room, or could be divided into two family chambers with a bath.

### Interior Finish.

The interior treatment of a house should bear some relation to the exterior in character. Therefore, in the hall there is a wainscot formed of oaken rails, and stiles with plaster panels. Both the living-room and dining-room have a paneled wainscot extending almost to the ceiling of each room, with the ceiling heavily beamed. The hall, living-room, dining-room, and library are finished in plain oak stained a dark brown, and waxed. The plaster is tinted a soft, mellow gray. With these colorings, the hangings should be of tapestry, the furniture English, and the rugs Oriental. The woodwork of the bedrooms would be best in white paint or enamel, with chintz furniture-coverings and curtains.

The house is not large, and would not be an expensive one to build, owing to its compactness. A driveway on the dining-room side, swinging by the service court at the rear to a garage or stable, would permit a carriage entrance at the end of the terrace.

The first storey should be nine feet high, and the second storey eight feet six inches high, with a seven-foot six-inch attic. The house is designed to be built with a wooden frame, sheathed and covered with metal lath and stucco; but the main walls could be of hollow terra-cotta tile or brick, and then covered with stucco.

Brick outside walls with the projecting cables on the front of wood and stucco, would make an interesting combination in keeping with its style. Even if the vertical half-timber strips were omitted from the gables, and the walls made perfectly plain, the beauty of the design would still be maintained.

## Rule for Finding Size of Furnace for Dwelling House

Very often the builder is interested in knowing just how to find the size of furnace that is required to heat a dwelling house which, for example, he may be erecting, and he will therefore be interested in the rule which follows for finding the size of hot-air furnace for a dwelling house of ordinary wooden construction so as to provide a comfortable temperature within while the thermometer outside may register zero. The rule, which was given in a recent issue of the Sheet Metal Shop, is as follows:—

Most rules for the size of a furnace are based upon the cubic feet of space to be warmed. While rules of this kind may be safely employed by experienced men, they are not so well adapted to general use. This is because they do not take into account the exposed wall and window surface, which is not always proportional to the cubic contents. The following method is based on the assumption that the outside wall constitutes five-sixth of the total exposure, while one-sixth is made up of glass; with a heat loss of 19 thermal units per square foot of wall surface per hour and 85 thermal units per square foot of glass. It also allows for an increase of 20 per cent. for leakage, 16 per cent. for exposure to winds, and 10 per cent. for the heat loss through attic. The combined effect of these losses amounts to 45 heat units per hour per square foot of gross outside wall surface (including glass).

If the air comes to the surface at zero, the heat loss, as computed above, must be multiplied by 2.4 to allow

for the heat required to bring the entering air up to the temperature of the room (70 degrees).

Having determined the total number of heat units to be provided for per hour, the square feet of grate surface in the furnace may be found by dividing the factor given in the second column of the following table, which corresponds to the limits of the grate area as given in column 1:—

Limits of grate area.	Factor.
1 to 4 square feet .....	24,000
5 to 10 square feet .....	32,000
11 to 15 square feet .....	40,000
16 to 20 square feet .....	48,000

Example.—A dwelling house has a total outside wall and window surface of 2,000 sq. ft. What should be the grate area to maintain an inside temperature of 70 degrees in zero weather?

$2,000 \times 45 \times 2.4 = 216,000$  thermal units to be provided by the furnace per hour. Dividing by 32,000 as a trial divisor, we find that  $216,000 \div 32,000 = 6.75$  sq. ft. of grate surface are required, this coming within the limits for this divisor, as given in column 1.

## Town Planning Act of New Brunswick

The Town Planning Act passed by the legislature of New Brunswick this year, places wise restrictions on various phases of city and town development. A brief summary of the principal clauses is given herewith:

Any town or city council may prepare a town planning scheme, but before it is acted upon, it must be approved by the Government. Thus, all future developments in the towns and cities of the province are carried out under Government supervision; and ample provision has to be made for suitable traffic highways, proper sanitary conditions, open spaces for parks and playgrounds, the number and nature of buildings per acre, etc.

Local commissioners, appointed subject to Government approval, shall be the responsible authorities for supervising the development of new town areas. These commissioners are given important powers in order to compel conformity to the law, but private rights, when injured, must receive compensation.

It is perhaps unfortunate that city governments require such paternalistic regulations on the part of the provincial authorities. Past experience has made it plain, however, that such regulations are, in the case of most cities, absolutely essential if cities and towns are to be developed along sane and healthful lines. It would be to the advantage of the other provinces to follow the lead of New Brunswick in this important matter.

## Preventing the End Grain of Wood From Checking

Blocks of wood stored for use in turning are usually coated on the ends with oil to prevent cracks and checks during the drying-out process. A most desirable substitute for oil is paraffin melted and poured lightly over the ends. This is clean and not greasy to handle, answers every requirement and has found favor with the best wood-workers.





Front elevation scale 1/16 in. to the foot.

## Design for Combination Store and Dwelling

By Arthur Peters

THE accompanying drawings of a combination store and dwelling, reproduced from the Building Age, show elevation, floor plans and a detail of the main cornice, which also is of interest. The plans show the store on the main floor, beyond which are the living rooms of the proprietor. On the second floor is a doctor's office with waiting room, and beyond are the living rooms.

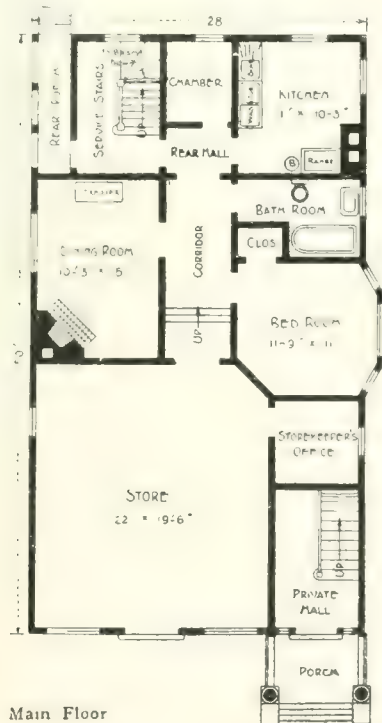
The foundations are of stone with underpinning of hard burnt brick. The walls are of frame construction, covered with sheathing boards and clapboards with good heavy building felt between. The roof is covered with shingles.

The architectural treatment is in the colonial style, the general scheme being clearly indicated on the front elevation.

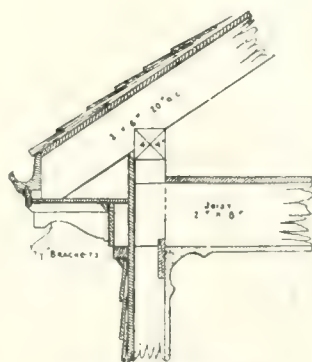
Referring to the first-floor plan it will be noticed the floor level of the store is only about 6 in. above that of the sidewalk, thus adding 18 in. in the height of ceiling in the store as compared with the height of the other rooms on the ground floor. There are three steps up in the corridor connecting the store with the living quarters. This corridor is lighted by the transoms in the doors of the dining room and the bed room, and more or less light comes from the rear hall.

In the attic there is space for three or four bed rooms lighted by dormer windows. The tenants of the second floor have private stairs in front and service stairs in the rear, which lead down to the first floor and basement and up to the attic.

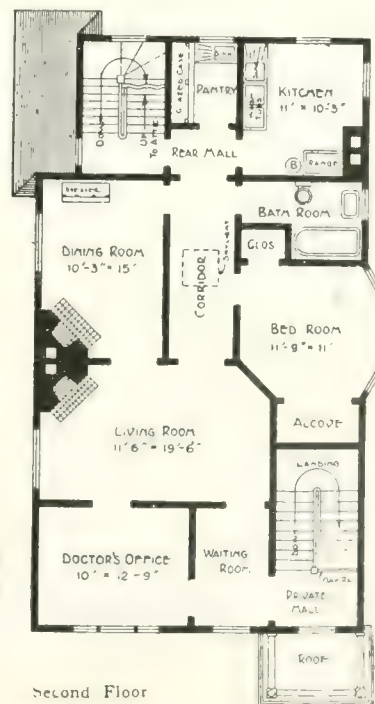
In basement is furnace room, coal bins, laundry and space for storage of goods for storekeeper.



Main Floor



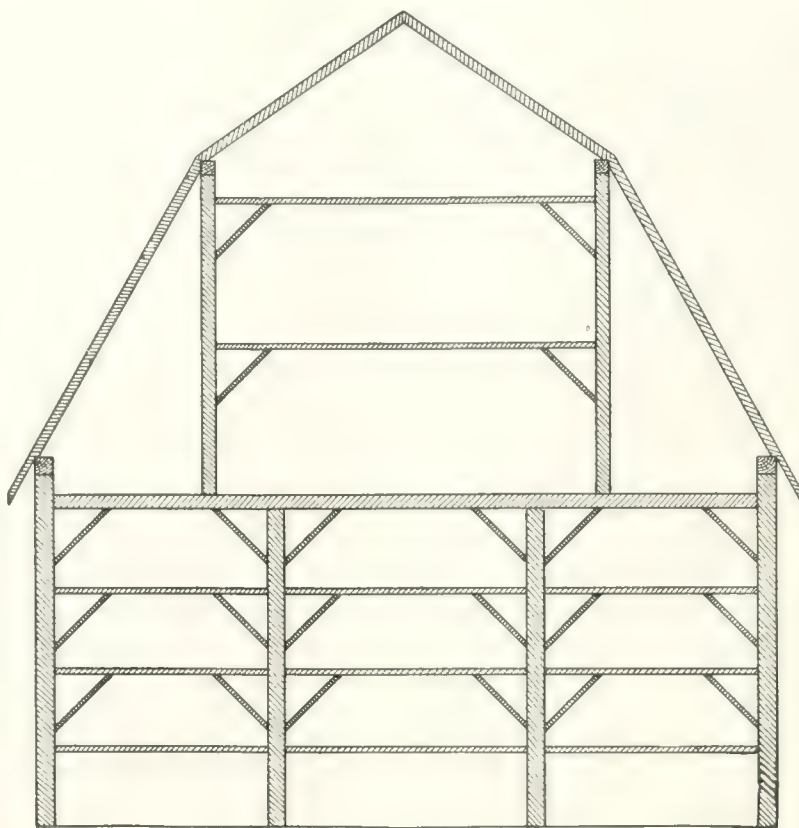
Detail of main cornice.



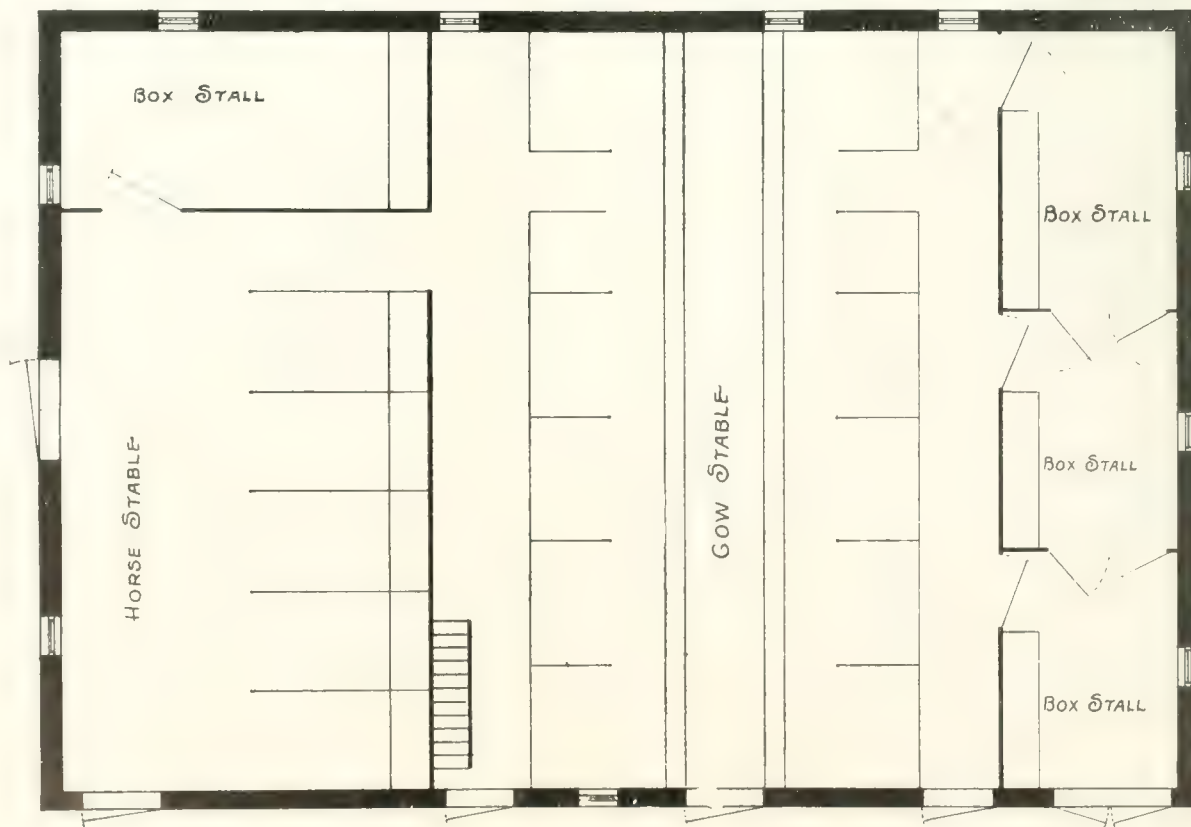
Second Floor



## Ideal Barn Plans



40 ft. wide, 20 ft. post.



58 ft. long, 40 ft. wide.

Plan by PETER VANNESS, Dead Creek, Ont. Reprinted by courtesy of the Metal Shingle and Siding Co., Preston



# Annual Meetings and General News of Builders' Exchanges

*Annual Convention at Calgary of Canadian National Association, Feb. 18, 19 and 20, 1913. New Officers of the Exchanges.*

**T**HE seventh annual convention of the Canadian National Association of Builders' Exchanges will be held in Calgary Feb. 18, 19 and 20, when a large attendance is expected. Papers will be read on "Technical Education," by Mr. Kidner, of Calgary; "Relation of Architect and Contractor in Legislation," "Organization," probably Mr. Miller, of Edmonton; and one on "Town Planning."

The following is the programme prepared by the Secretary, J. H. Lauer, Montreal:

## Programme.

### Tuesday, February 18, 1913—

- 9.30 a.m. Registration of Delegates.
- 10.30 a.m. 7th Inaugural Meeting C.N.A.B.E.  
Address of Welcome by President of Calgary Builders' Exchange.  
Reply by Mr. Nesbitt, Quebec.  
Address of Welcome by His Worship the Mayor of Calgary.  
Reply and Presidential Address by Mr. Morley, Winnipeg.  
Naming of Committees by President.  
Adjournment for Luncheon.
- 1.30 p.m. Automobile Tours to Points in Calgary.
- 8.00 p.m. Committee Meetings.

### Wednesday, February 19, 1913—

- 9.30 a.m. Roll Call of Officers and Accredited Delegates.

Minutes of the 6th Annual Convention held in Toronto, February, 1912.  
Reports of President and Secretary.  
Adjournment for Luncheon.

- 2.00 p.m. Reports of the Provincial Vice Presidents to be followed by Discussion.
- 3.30 p.m. Paper to be read, followed by a full Discussion and any Motions Desired.
- 5.00 p.m. Paper to be read on Organization.  
Adjournment for Dinner.
- 8.00 p.m. Entertainment.

### Thursday, February 20, 1913—

- 9.30 a.m. Paper.
  - 11.00 a.m. Paper.  
Adjournment for Luncheon.
  - 2.00 p.m. Paper.
  - 3.00 p.m. Business Session for Delegates only.  
Reports of Committees.  
Prospective Legislation.  
Election of Officers.  
Ways and Means.  
Adjournment.
  - 8.00 p.m. Banquet for delegates and visitors.
- J. W. Morley, Winnipeg, is President of the C.N.A. B.E.

### Annual Meeting Montreal Builders' Exchange.

The 15th annual report showed that the Exchange was in a prosperous condition, and through its members was doing good work. Regret was expressed at

"Architect's residence"  
residence of J. C. Lauer,  
on Davenport Road, Tor-  
onto.





the death, and sympathy extended to the families of three members who had passed away during the year: Mr. Peter Lyall, Mr. J. W. Hughes and Mr. J. E. Burritt. The election of officers and directors for 1913 resulted as follows:

President, Mr. Joseph Brunet; 1st Vice-President, Mr. Thomas Glday; 2nd Vice-President, Mr. Frank Pauze.

Directors: Mr. John Allan, representing the general contractors; Mr. E. Richardson (of Richardson, Simard & Co.), representing the roofers; Mr. Kennedy Stinson (of Stinson-Reeb Builders' Supply Co., Ltd.), representing the builders' supply dealers; Mr. P. S. McKergow (of the Laprairie Brick Co., Ltd.), representing brick interests; Mr. J. B. Gratton (of J. B. Gratton, Ltd.), to represent the carpenters; Mr. John Quinlan, to represent stone and masonry interest; Mr. William Rutherford (of Wm. Rutherford & Sons Co., Ltd.), representing lumber and mill interests; Mr. William E. Potter (of Wm. E. Potter & Co.), representing the master painters; Mr. T. A. Morrison, representing the quarrying interests; Mr. J. O. Meadowcroft, representing the master plumbers; Mr. F. B. Locker, representing the mantle and tile dealers; Mr. E. W. Sayer, representing the electrical contractors.

Reproduced herewith are some extracts from the annual report which is signed by James Ballantyne, president; Joseph Brunet, vice-president, and R. L. Werry, secretary:—

The year 1912 has gone on record as the greatest in the history of Montreal from the standpoint of extensive, valuable and up-to-date building operations. We are pleased also to be able to report the past year as one of the best in the history of our Exchange. We find ourselves at the beginning of 1913 with no serious labor difficulties confronting us. During the past twelve-month agreements have been signed with several trades. Other branches of the building interests seem to be flourishing and the persons engaged in them contented.

**The Stone Duty.**—One of the first matters your directors had to consider during the past year was the subject of an increase in the duty on stone. In February a deputation was appointed to go to Ottawa and interview the Minister of Finance on the subject. This was done and the delegates were assured that, while nothing could be done at the time, the matter would be taken up and dealt with at the next session. In the meantime your committee, Messrs. Morrison (con-

venor) Brunet and Quinlan, as representing the stone interests of the Exchange have prepared and circulated petitions on the matter among those engaged in the stone industry throughout Canada, and these have been very numerous signed. Parliament is now sitting and the delegates expect to have their request laid before the House next month. It has been found that the conditions and the requirements of the different branches of this industry—granite, marble, sandstone, etc.—are so different that difficulty has been experienced in presenting a united front; but a solution of the problem is confidently looked for.

**The Uniform Contract.**—In April the form of uniform contract which Mr. Lauer had been working on for years, was completed by a committee representing both the Architects' Association and the Builders' Exchange, and was ratified by both organizations and put into circulation. Hundreds of copies have been sold (at bare cost) and we have reason to believe they are proving very beneficial. We have more copies on hand should members require them. It would appear that "tender" forms or estimating scales for different classes of work are needed quite as badly as were the other forms.

**Lien Law and Compensation.**—The Quebec Lien Law was discussed early in the year, and some of our members gave the matter considerable study. In April it was decided to defer the appointment of a committee until a later date, and the busy season coming on nothing was done. We think the incoming executive would do well to take up this important question and formulate some amendments that would be of decided benefit to contractors throughout the province.

The Workmen's Compensation Act, as interpreted by some quarters, bears heavily upon all concerned—except the injured. It is not reasonable that the chances, in many instances, should fall wholly on the contractor. In fact the contractor is bound to add the cost of the premiums for the protection of his employees to the price of his contract, not having a separate bank account of sufficient proportions to fall back upon in the way of self-insurance. Consequently, the proprietor through the contractor and the insurance or guarantee company must pay the bill. There are many phases of this subject that call for careful study. They are being discussed by sister Exchanges in Canada and the United States. Readers of the "Bulletin" will have read articles on the subject. It would seem to be the part of prudence that the matter should be gone into at an early date—before spring opens, if possible.

**Building By-laws.**—The subject of our Municipal Building By-law is becoming wearisome. Since 1909 the present agitation for improved regulations has been under way. Correspondence on file shows that the Exchange, through its secretary was in communication with the aldermen in 1909 urging that something be done to put our disgraceful by-laws into a condition consistent with the size, and importance of the city. In October, 1910 the Architects' Association wrote the city clerk that in the previous February a committee had been appointed by council to revise the building by-laws, but up to date of writing nothing had been done. In the same month the secretary of the Exchange was notified that the Board of Commissioners would be pleased to meet a delegation which he had asked a hearing for. Later a large general committee was appointed including architects, engineers and practical tradesmen, experts in their various lines, and after a number of meetings they left the drafting of the basis



Municipal rooming houses, erected in North Battleford, Saskatchewan. The housing problem has become a very serious one and this method has partially alleviated the congestion. The house was erected in sixty days. Local builders were so busy they could not construct, and men were brought from the East to do the work, which is a creditable enterprise.

of a by-law in the hands of two of the members expecting that they would be called together again in due time to adopt or amend the new regulations. Up to the present, however, this has not been done, and the text of the proposed by-law, as completed by the sub-committee of two, has been laid before the city council by the alderman who was the original chairman of the general committee. The council has ordered the document translated and it may be put into type or even discussed and adopted by the council without coming again before the general committee.

Against this procedure your directors have protested in communications sent to the civic authorities. Our present by-laws are a farce, not fit for a small town, and the method taken to improve them does not show much concern or seriousness on the part of those into whose hands the safety, health and general well-being of the citizens has been committed.

**Transportation Problems.**—One of the greatest drawbacks to the building trades during the past season was the inadequate transportation facilities available. The trouble commenced with the railways which could not furnish sufficient cars nor give prompt delivery of materials. Then, when goods were delivered at the yards or warehouses there was a shortage of carts, horses and even of men. In desperation over these conditions the builders and contractors and supply dealers in the fall appealed by petition to the city council to pass a by-law authorizing the Tramways Company to carry freight through the city on their lines under suitable conditions. This request has been held up and people having heavy materials to transfer from one part of the city to another have to suffer on account of a dispute regarding entirely different matters between the civic authorities and the Tramways officials. We have every confidence that, in due time, our request will receive the consideration and meet with the favorable action which it deserves in the public interest. The carrying of freight need not add to the congestion of passenger traffic if properly managed as it will be, some day, no doubt.

### Toronto Branch of Builders' Exchange.

The annual meeting of the Toronto Branch of Builders' Exchange was held on January 20, when the following officers were elected:

President—Mr. Charles Bulley.

1st Vice-President—Mr. George Oakley, Jr.

2nd Vice-President—Mr. G. W. Britnell.

Secretary—Mr. P. L. Fraser.

Treasurer—Mr. John Aldridge.

Executive—Messrs. Edward Gearing, E. J. Curry, Charles Sawden, Harry Jennings, John Wettlaufer, and George Gander.

Auditors—Messrs. James Munro and John Barnes.

The annual report showed a satisfactory state of finances and a substantial growth in membership.

At a meeting of the Master Masons' section of the Builders' Exchange, the following officers were elected:—

President—Mr. Harry Jennings.

Vice President—Mr. Harry Bayliss.

Treasurer—Mr. James Craig.

Executive—Messrs. John Aldridge and C. E. Wood.

Representative on Board of Directors—Mr. Walter Page.

The elections for Master Plasterers, Master Stone Cutters, Master Carpenters and Brick Manufacturers have not yet been held for 1913.

### 1913 Officers of Hamilton Builders' Exchange.

At the annual meeting of the Builders' Exchange, Hamilton, the following officers were elected: President, R. A. Nicholson; 1st vice-president, John Poog; 2nd vice-president, W. Murray; secretary, Arthur Heatly, 7 East Avenue south; treasurer, James McNeil; auditor, Bert Ford; directors, James Evans, Robert Somerville, Roderick A. Nicholson, John Poog, James McNeil, Guy Montrose, John M. White, William Murray, Arthur Heatley and James Rerie. The report showed that progress had been made in 1912 and that prospects were bright for 1913.

### Winnipeg Builders' Exchange.

At the annual meeting of the Winnipeg Builders'

Sir William Meredith's  
residence, Binscarth Rd.  
Toronto.





Exchange, the financial report of the secretary, Mr. A. M. Rose, showed the exchange to be in flourishing condition. The election of officers resulted in the re-election of Mr. W. J. Davidson as president; Mr. F. Hinds, 1st vice-president; Mr. J. McQuarrie, 2nd vice-president; Mr. Thomas D. Robinson, treasurer; and the following to the board of directors: Messrs. W. P. Alsip, J. W. Morley, H. C. McMartin, and R. W. Patterson. The board is composed of twelve members, four retiring each year. Mr. A. M. Rose was re-elected Secretary.

#### Calgary Builders' Exchange.

The annual general meeting of the Calgary, Alberta, Builders' Exchange was held in the offices of the Exchange, Judge Travis building, January 8, 1913, when the election of officers for the ensuing year took place. R. A. Brocklebank was unanimously chosen as president and the other positions were filled as follows: First vice-president, James Marr; second vice-president, R. J. Priestly; third vice-president, Fred Jones; sergeant-at-arms, J. J. Gracie. A. Stewart was elected a director to fill a vacancy until December 31, 1914, while the following will have places on the board for the full term of three years: C. A. Clancy and S. B. Ramsay (re-elected), and F. L. Magee and C. E. Streight.

Considerable progress has already been made with regard to the organization of the exchange into various trades' associations, and the general contractors and the plastering contractors, and supply and materials' dealers, have effected organization.

The General Contractors' Association has elected R. A. Brocklebank as chairman, and Fred Jones, vice-chairman. The association discussed a resolution to alter the personnel of the board of directors to consist of two members from each trade association, this executive to handle all routine business and refer particular business to the section concerned. The general contractors have arranged to hold meetings every Saturday at the lunch hour.

#### Moose Jaw Builders' Exchange.

At the annual meeting the election of officers resulted as follows: P. Hotson, of Hotson & Leader, president; J. Dombrosky, 1st vice-president; J. Trimble, 2nd vice-president, and J. D. Everard, secretary.

A banquet was held recently at the Royal George Hotel when ninety-one attended. It was presided over by T. H. Potts, one of the directors, owing to the unavoidable absence of the president, T. H. Navin. Seated on the chairman's right and left were W. E. Knowles, M.P.; W. B. Willoughby, M.P.; Mayor-elect Pascoe, B. C. Crichton, president of the board of trade, and the city commissioners. After doing full justice to the repast, the chairman gave the toast of "The King," which was honored in the usual way. The toast of "Our City and Trade" was proposed by B. C. Crichton, of the board of trade, and responded to by Mayor-elect Pascoe. "Our Architects" was proposed by Jas. Gowan, and responded to by Sholto Smith, who gave a very interesting resume of the building trade back almost to antiquity, showing the close relationship between the architects and builders. The toast of "The Builders' Exchange" was given by W. E. Knowles, M.P., who emphasized the rapid growth of the Exchange during its first year of existence, and showed its sphere of usefulness and the evident need of such an institution. This toast was responded to by W. B. Willoughby, M.P., who pointed out the marked improvement in the interior of dwelling houses for

the health and comfort of the inhabitants. The toast of "The Visitors" was proposed by T. H. Potts, and responded to by W. A. Wilson, of Regina, president of Saskatchewan Builders' Exchange.

#### St. Catharines' Builders' Exchange.

The officers of the Carpenters' Branch of the St. Catharines Builders' Exchange for 1913 are as follows: President, John Davis; vice-president, R. Williams; secretary, T. Mesler, 201 Church St.; treasurer, A. Cox. The secretary of the Masons' branch is Frank Hoare, St. Paul St.; for the Electrical branch is F. W. Martin, of the Martin Electric Co.; for the Painters, is Jos. Holden, of Wilson & Holden, 8 Page St., and for the Plumbers' branch is Jno. Peart, Chestnut St.

#### Montreal Real Estate Exchange

The Montreal Real Estate Exchange was formed on January 20, with the following strong directorate:

Mr. U. H. Dandurand, president; Mr. D. W. Ogilvy, vice-president; Mr. T. B. Peloquin, treasurer; Mr. W. A. Cotton, Mr. E. N. Hebert, and Mr. J. G. Ross, additional directors.

The new organization will operate on the same lines as a stock exchange. Seats, of which there are 60 in the first allotment, will sell at \$200 to begin and will thereafter be saleable on a speculative basis. Fifty of them are already signed for.

Commodious quarters are being arranged for which will provide an ample floor. Daily bidding and quotation listing, with provision for associate members who may look on at the doing in the pit, will be part of the procedure. A man experienced in the executive of such organizations will be imported, probably from Boston.

The local exchange will be modelled as closely as possible on those of Boston and Chicago, which are flourishing affairs occupying a very important position in the business life of those cities.

#### Canadian National Association of Builders' Exchanges

City.	Secretary and Address.
Montreal	R. L. Werry, Sec., 263 St. James Street.
Toronto	P. L. Fraser, Sec., 2 Berti Street.
Quebec	A. Cote, Sec., 23 Rue St. Jean.
Ottawa	W. Hastings, Sec., 22 Metcalf Street.
London	Geo. S. Gould, Sec., Bank of Nova Scotia Building.
St. Thomas	E. O. Penwarden, Sec., Dowler Block.
Kingston	E. R. Beckwith, C.E., 292 Earl Street.
Sault Ste. Marie	MacPhail & Wright Cons. Co., Limited, P.O. Box 835.
Brantford	A. J. Cromar, Sec., 103½ Dalhousie St., P.O. Box 212.
Windsor	Geo. A. Freeman, 44 Campbell Avenue.
Hamilton	A. Heatley, Sec., 7 East Avenue South.
Stratford	J. L. Young, Contractor.
St. John, N.B.	Chas. F. Stevens, Builders' Exchange.
Halifax, N.S.	H. Roper, care S. M. Brookfield, Limited, 58 Granville Street.
Winnipeg, Man.	A. M. Rose, Sec., Portage Avenue and Hargrave Street.
Regina, Sask.	Geo. Powell, Sec., Builders' Exchange.
Calgary, Alta.	W. W. Hay, Sec., Board of Trade Building.
Edmonton, Alta.	A. O. Wetmore, Sec., McDougall Court.
Medicine Hat, Alta.	J. D. Everard, Sec., Builders' Exchange.
Lethbridge, Alta.	E. Power, Sec., Acadia Block.
Vancouver, B.C.	Builders' Exchange, 342 Pender Street.
Victoria, B.C.	Chancery Chambers.
St. Catharines	Thomas Mesler.

## Essex Association Holds Annual Meeting

The annual meeting of the Builders' and Contractors' Association of Essex was held at Windsor on January 14. The following officers were elected: President, James Penington; vice-president, C. Scott; secretary-treasurer, Robt. Parker; recording secretary, G. W. Freeman, Windsor. This is the sixth time Mr. Freeman has been elected to the office of recording secretary, he having it since the inception of the association.

The association is entering upon its sixth year and has a membership of 47.

## Toronto Building Permits for January

The report of the City Architect of Toronto shows that during the month of January, 1913, 484 building permits were issued, for a total value of \$1,276,084.

## Edmonton's Permits for January

A classified list of the building permits issued at Edmonton, Alta., during January, 1913, is as follows:

1 apartment house .....	\$31,000
30 dwellings .....	62,900
1 foundation .....	1,000
3 garages .....	700
1 hotel .....	15,000
15 stables .....	5,385
24 small buildings and alterations .....	6,080
9 stores and offices .....	112,800
3 warehouses .....	1,250
4 workshops .....	5,700
91 Total .....	\$241,815

## Plank Frames for Farm Buildings

*By A. A. Gilmore*

No doubt many of The Builder's readers are country carpenters who build many farm barns each year. It is only a framer who has worked on a large timber frame that knows the amount of hard work it takes to get one ready to raise. Then it really requires a lot of experience and careful thought to lay out a big frame and have it go up without any mistakes.

For several years I was busy on just such work, but year by year I found it getting harder to hire men to work on heavy framing, besides with the increase in cost of labor I found it hard to get a job from a farmer at a price giving me any profit over my wages. Such things made me anxious to get some sort of frame that could be built for less money and consequently not require so much help. Along about this time, I heard of a frame constructed entirely of planks which a man in Ohio had invented. It took me a year or so getting details of it and travelling around during the winter to see this new frame, but finally I succeeded in getting two farmers to build their barns after this style. I was a little bit afraid when I started to frame them, but soon found how easy it was.

The next year I got several more barns and then the year following I had barns to build 50 and 100 miles from home at prices far better than I ever expected to get. Soon the farm paper representatives came to interview the plank frame man and gave accounts and photos of this frame in the papers, and

then from that time I had offers to go and build barns from the Maritime Provinces to British Columbia, and have sent plans and explanations to every province in Canada. Now any of you barn framers can soon learn to do this work, and I would suggest that you write the Editor for any help you may need, as I am willing to help all in this work, and I am sure the Editor will be glad to help you all he can.

Let us Canadians be modern in our barn framing as well as all other structures. Although a new writer in the Canadian Builder, I am well known to many of the best country carpenters, and wish to get better acquainted with you all, and with that end in view will submit articles and drawings of farm structures from time to time.

## Painted Radiators and Heating Efficiency

There always has been considerable controversy between stove and heating men as to whether or not painting a radiator will lessen the amount of heat given out by said radiator.

It is generally believed that there is a great loss in efficiency from painting radiators. We do not agree with this opinion, however, says The Locomotive, and it has long been our custom to require piping and radiators to be painted in colors appropriate to the finish of the rooms in which they are placed. Professor C. L. Norton, of Boston, Mass., made a long series of experiments upon the transmission of heat through and from painted surfaces. His results are highly interesting, and are recorded in the nineteenth volume, (1898) of the Transactions of the American Society of Mechanical Engineers. They have seemingly never attracted the attention they deserve. Taking the amount of heat radiated from a new pipe as 100, Professor Norton obtains the following relative values for the heat radiated, under similar conditions, from pipe treated as indicated:

Loss of Heat at 200 lbs. Pressure from Bar Pipe.

New pipe .....	100
Fair condition .....	116
Rusty and black .....	119
Cleaned with caustic potash, inside and out .....	116
Painted dull white .....	120
Painted glossy white .....	100.5
Cleaned with potash again .....	116
Coated with cylinder oil .....	116
Painted dull black .....	120
Painted glossy black .....	101

It appears from the foregoing results that the color of the pipe has little or no effect upon the radiation of heat, though the condition of the surface with respect to glossiness or dullness has quite a sensible influence. Thus a dull surface, whether it be white or black, has a radiative power of 120, and a glossy surface, whether white or black, has a corresponding power of only about 101. These results accord well with our experience, which is to the effect that there is no loss in efficiency through making pipes and radiators harmonize with the general color scheme of the rooms in which they are placed, provided glossy finishes are avoided.

When you find a man who complains that his trade paper has never been of any benefit to him, you have found a man who does not read that paper, except perhaps to hunt up the department devoted to jokes.



## Some Things About Painting of Interest to Carpenters and Builders

I have often noticed carpenters using white lead in oil to cement floor boards together when they are being laid, and often as a paint for the underside, says R. H. Fargrave in the *American Carpenter and Builder*. White lead in oil makes a good cement, yet, for such work it is not equal to white lead in varnish. The latter is much stronger and has fewer objectionable features inasmuch as it dries more quickly, which is a most desirable thing.

White lead in oil is a slow dryer, and, the addition of dryers does not help any. Hence when the flooring is damp at the time of laying it is liable to dry and shrink before the lead-oil cement is sufficiently dry to hold it. Lead and oil do not hold well until perfectly dry. On the other hand, lead and varnish cement dries and hardens more quickly and holds better. On account of the gum it contains, which is generally Copal or Kauri, it makes a good cement by itself.

When lead and varnish is used it serves a double purpose—cement and crack filler. It should be mixed very stout and plentifully applied, filling the groove, in part, thus, when the boards are clamped in place, the cement will be pressed out of the groove into the cracks between the boards. The excess may then be removed with a putty knife. This cement filler should be colored to match the wood. The usual coloring matter used for colors to match all kinds of natural wood is either chrome yellow, burnt and raw umber, burnt and raw sienna, or a mixture of two or more of them. Try until the right shade is obtained.

### More Red Lead Should be Used.

While the foregoing, used in the way I have described, makes good cement and crack fillers, red lead in varnish is much better than either. Also, red lead in oil is superior to white lead in oil, but, when a natural finish is used the color is against it, as the red will show in the crack. For a floor which is to be painted it is all right. It will do if the floors are to be in very dark tones. Red lead in oil dries very quickly, and, still quicker in varnish. Owing to this characteristic it is usually bought in dry form and mixed just before it is used; for, if it is allowed to stand in oil for only a short time, it will get hard. Hence dryers should never be used with it. As a paint for underneath floors where there is liable to be moisture, it is superior to all other paints.

In all cases possible, red lead in varnish will be found to be more satisfactory for a cement, or to paint surfaces that are exposed to constant moisture than any of the waterproof paints. I think I have tried nearly all of them. In my opinion it surpasses all other paints for metal, such as roofs, priming for steel railroad cars, bath tubs, etc. Every painter of experience knows how difficult it is to get paint to stand on galvanized iron for any length of time. If it is primed with red lead, then the next coats may be any kind of good paint desired; it will stand longer than by any other method. In view of these facts, I cannot understand why more red lead is not used.

The late Mr. V. B. Grinnell, who was an experienced painter and an authority on metal painting, cites instances where exposed metal painted with red lead was in perfect condition after forty years, there being no rust under the paint. Red lead should always be mixed in raw oil just before it is to be used. Roofs and other exposed metal should never be paint-

ed with anything that includes varnish in its composition.

### Shellac Finish for Bowling Alley Floors.

A subscriber in a contemporary publication asks for the best method of finishing bowling alley floors. The floor finishing question has always been, more or less, a bugbear to the painter, owing to the hard and different kinds of hard usage to which they are subjected. Outside of dwelling house floors there are more failures recorded in this branch of the painting trade than in any other. On any surface that gets hard usage, the finish must, necessarily, be a part of the surface. The finish and wood must wear away at the same time, and as it wears must remain hard and smooth. Varnish, more or less of which is above the surface, won't do, as the incessant pounding and rolling of the heavy balls soon starts it to chipping and scaling off in places, while soft oil paint is out of the question entirely.

To finish such a floor so it will last the longest possible time, get it smooth and free from imperfections, then take grain alcohol shellac, quite thin, so that it will penetrate far into the pores of the wood, and with a stiff brush work it thoroughly into the wood so that every portion is perfectly filled. Smooth with sand paper. If one coat does not fill perfectly, another will be necessary. As shellac goes into the wood farther than anything else and becomes very hard, one becomes a protection to the other, and, as both wood and shellac wear away at the same time, and, owing to the hardness of the gum, the operation is slow, nothing further need be done to it until the wood has worn away as deep as the shellac has penetrated, when the floor should be redressed and finished in the same way again.

### Glue Sizing Saves in Painting Weathered Surfaces.

Every one who has had to do with painting old weather beaten boards, brick and stone walls, knows it requires a vast amount of oil for the priming coat, and two subsequent coats to do a good job. Now a job that will last just as long and look as well as three coat work on old buildings may be done with two coats of oil paint, which will save, perhaps, half the oil, at least one-fourth.

Make a size in the proportion of one pound of ground glue to one gallon of water. If the surface is very bad, use a little more glue. Allow the glue to soak in cold water over night or longer. Then melt it in cold water. Have the water just hot enough to melt the glue thoroughly. If the water is too hot it destroys the tenacity of the glue to some extent.

If the subsequent coats are to be in light tints, stir in some whiting, enough to show a little when brushed on. If it is a brick wall that is to be finished in red, use Venetian red instead.

Keep this sizing warm, and brush on with a large brush. This will fill all the small cracks, and two coats of oil paint will make a good job.

A job done in this way will stand any ordinary exposure just as well as three coats of oil paint. The writer, during his thirty years experience as a painter, has always had good results by this method. Why won't it stand? Because the moisture will affect the glue you say. Let me tell you, if the work absorbs enough moisture to affect the glue, the same would destroy any oil paint also. No. There is no danger of any trouble from the glue. A first coat of glue sizing and color will stand anywhere that oil paint will. Furthermore, a coat of glue sizing and color fills better than oil priming, consequently a smoother job when finished.

# The Canadian Builder and Carpenter

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LILL A. FORBES, Assistant Editor.

## Representatives:

GEORGE G. COLVIN 32 COLBORNE STREET, TORONTO  
GEORGE H. HONSBARGER 32 COLBORNE STREET, TORONTO  
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No. 2

## Topics of Interest to Canadian Builders

Prof. Fernow, after a trip over the N.T.R. on a motor car, reported to the Conservation Commission that probably a large percentage of the land through which this line passed, contained little timber of value. In 1900 parties of experts were sent out and they reported that there were in that region 288,000,000 cords of pulpwood, spruce, jackpine and poplar. There is very little red and white pine in the territory, as it lies north of the pine belt, but there are large quantities of good spruce and jackpine, of sawlog size, which are of much value for timber, ties, etc., beside an enormous quantity of timber suitable for pulp and paper making. Before development of this district can take place more investigations will be necessary.

\* \* \*

In planning houses for sale, builders should remember that the housewife can not have too many closets. If, therefore, he can turn little corners into cupboards without much expense, it will help considerably in closing a good sale.

\* \* \*

The work that Mr. Joseph Keele is now carrying on in the testing of clays at the University of Toronto is of great importance to the building fraternity. The testing of clays is being done in the department of metallurgy, which is under the direction of Prof. G. A. Guess. The work is part of a scheme of the Mines Branch of the Geological Survey, Ottawa, to study and tabulate data on the clays of Canada and their value for the making of brick. The equipment includes a large pottery kiln, fired with oil, and used for burning the commoner clay wares, made to full commercial size; gas and electric furnaces used for testing refractory and other high grade clays.

\* \* \*

At the recent annual convention of the Canadian Clay Products Manufacturers' Association, the members in attendance interviewed President Falconer, Dean Galbraith and other members of the Faculty of Applied Science, and later a committee waited on Sir Edmund Walker, President of the Board of Governors

of Toronto University, to impress on them the need of a course in ceramics. As such a course will result in decided advantage to the user as well as the manufacture of brick, it is hoped every user of brick will join with the C.C.P.M.A. in pressing their claims for this course.

\* \* \*

The annual convention of the Canadian National Association of Builders' Exchanges will be held in Calgary, February 18, 19 and 20, 1913. Arrangements have been made for the reading of papers on subjects of vital interest to the trades. Discussions will form a very important part of the programme and a helpful convention is assured.

\* \* \*

Building permits for 1913, so far as we have any information, lead us to believe that new records will be set in 1913. The Canadian Clayworker, a paper devoted to the brick manufacturer, is advising these manufacturers to increase their output. This paper states that "this is the safest course to follow next season. The building activity of 1914 will exceed even that of 1913. In a few centres, Toronto for instance, so many new plants are being installed that the production may catch up to the consumption. In the majority of centres, however, there will again be a shortage of brick, high prices all round, and it will be good policy to make more brick than you did last year."

\* \* \*

The Builders' Exchange of Montreal demand that the Tramways Company obtain the privilege of carrying freight, it being declared that unless this is done the cost of building will be greatly increased.

## Suggestions for Civic Improvement

The time seems opportune for municipalities to seek, through their civic improvement committees, such legislation as would facilitate desirable civic improvements. This legislation might include, amongst other enactments, the following provisions as suggested by Mr. C. H. Mitchell, C.E.:-

1. Provision for Civic Improvement Commissions in the smaller cities.

2. Provision, applicable to cities smaller than already provided for in the Ontario Act, for the purchase by municipalities of lands required for opening streets, not only sufficient for the streets themselves but for an adequate margin on each side which, after the opening has been completed, can be re-sold as lots, thus producing a revenue to help meet the cost of the improvement.

3. Provision for municipalities to secure streets wider than 66 feet in new sub-divisions when necessary to conform to a town planning scheme.

4. A practical method for any necessary widening of business streets already built up.

5. An adequate control over new sub-divisions so that the layout will conform to modern requirements and so that misrepresentation cannot be practiced. The embodiment of such information as contours and elevations is to be recommended.

6. Provision for the control, by the municipality, through the "Ontario Railway and Municipal Board," of the layout and street-planning features of sub-divisions outside the city limits for a stated distance.



# Carpentry and Woodworking

## To Divide a Board into Equal Parts

The accompanying illustration shows how to divide a board into an even number of parts, each part being equal, when the same is an unequal number of inches, or parts of an inch in width. Lay the square as shown, with the ends of the square on the edges of the board, then the points of division will be found at 6, 12 and

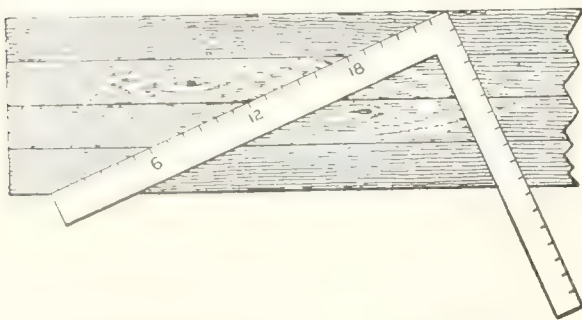


Fig. 1. Dividing a board into equal parts with square.

18, for dividing the board into four equal parts; or at 4, 8, 12, 16 and 20, if it is desired to divide the board into six equal parts. Of course the common two-foot rule will answer this purpose as well as the square, but it is not always convenient.

## Methods Adopted by a Builder and Carpenter

*By Frank G. Myers, Fort Francis, Ont.*

When I started on my own account five years ago, I prided myself on being able to build a house with less lumber than most other carpenters. Now, I have gotten over that. It does not pay to skimp the size and quantity, if you don't want floors to spring and sag and roofs to spread, etc., said Mr. Myers in writing to "American Carpenter and Builder."

Also I put in more nails than I used to. Nails are cheap; don't skimp the nails. Also I used to put on building paper to keep out the wind. Now I have changed my ideas and build my walls to keep in the heat and keep out the cold. I always line my houses with ship lap or D. & M. stuff, outside and inside,—paper and novelty siding outside, and paper and straps on the inside lining—then lath and plaster. I strap at 16 centers with lath.

By lining inside with inch boards, you can always put studs at 24-inch centers and to save a little dimension, and put the price into the inside lining.

First floor joists are 24-inch centers; I strap them with 1 by 2 and 16-inch centers. Attic joists coming on top of plate can be put 16-inch centers. Then I floor attics all over right out to the rafter plate, to keep heat of bedrooms from evaporating through plaster ceiling.

There is a large saw mill here manufacturing pine

lumber. Their prices for base, casing and mouldings are so high that we can make them by hand just as cheap. We have to pay 75 cents a hundred for  $\frac{1}{4}$  Rd. So we have been shipping from Davenport, Iowa, all our mouldings, newels and hand rail and fancy sash; and we can pay freight and duty and save 40 per cent., easy.

## Equipped a Shop.

We purchased a small combined rip, cross-cut and hand saw with 3-inch jointer. It is ball bearing and runs fine with two-horsepower motor. We have rigged up an emery on one corner and grind everything in sight. We even rasp up wood work on it and sharpen our pencils on it. We make a lot of storm windows, cutting our tenons on the rip, plugging out our mortises on a foot power. We have ripped up 6 by 6 timbers by turning them over and cutting 3 inches each time and resawed 8-inch boards on the rip and finished on the band saw. That little machine has paid for itself in six months.

I came to this town from Manitoba eighteen months ago; got my first contract and started in, determined to show what I could do. I have always made it a point to give my customers more than they bargained for and have never had to hunt work, for one satisfied customer is the best ad. a fellow can have. We built nineteen houses this summer in seven months; have also kept a man busy in the shop, and now we have enough to keep four men in the shop.

## Winter Occupation.

In the winter I usually draw plans for houses to be figured on in spring. I think the contractor who draws his own plans has a decided advantage over the man who cannot, or who has no taste for such work. He comes in personal contact with the prospective builder and makes the suggestions, and if he is up-to-date, as he should be, he can prove it by showing samples of the latest thing in paper, roofing, brick, mantels, painting and color schemes, floor varnish, etc.

I put in my first cabinet—dining to kitchen—for nothing to get the idea started. Have put in three this summer as a result.

Don't be afraid to give something for nothing once in a while. People like to tell about it, and you will get it back sometime somehow.

I got sick of having painters come on after me on a job and spoil our nice lumber by covering the beautiful grain with a coat of some cheap dope or other to stain the wood. So I hired a good man myself and bought our paint and varnish wholesale. Got a good alcohol stain and had him put it on and rub off again to bring out the beauty of the grain; then one coat liquid filler and one coat varnish make a very good finish.

We get a profit on the paint and a far better job than we did when sub-letting to painter contractors.

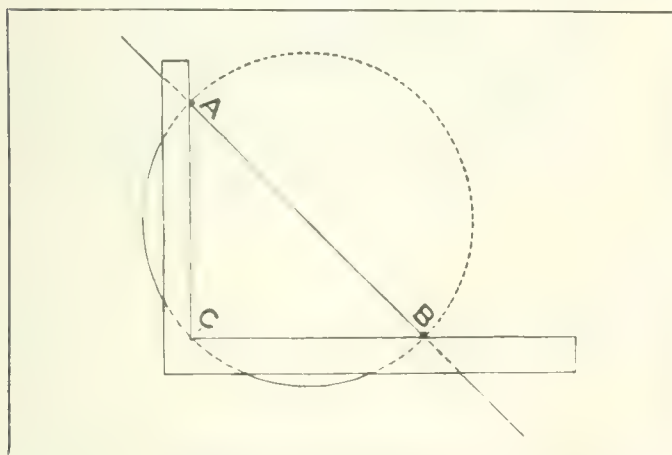
Our greatest trouble has been to get people to wait for their houses long enough to get the plaster dry;

then they kick because the doors swell and won't work and the floors shrink, etc.

I always aim to work on the job myself and keep the gang together. Start ten men on a frame house and hear people talk about how we push the work ahead and don't keep people waiting all summer for their houses. I have Radford's Encyclopedia of Construction and find it ever useful.

### To Describe a Circle With the Aid of the Steel Square

A circle may be accurately described with the aid of the steel square provided the diameter of the circle does not exceed the length of the shorter arm. In the illustration let AB be the desired diameter, and at these points drive small brads. Then place the inner



edges of the square as shown touching the brads, and with a pencil at the angle of the square as C move the square, keeping it close up to the brads, and it will have made a true semi-circle. Reverse the square and repeat the operation and the true circle will be complete.

### Best Way to Finish Oak With a Polish

A painter in one of the Western States having to do a job involving the finishing of oak with a good polished surface, wrote the Painters' Magazine for information. In reply to his questions the authority named offered the following:

First have the wood well sandpapered, cleaning up any soiled places; then thin a good mineral paste wood filler (that made with straight silex in the pigment being best) with pure turpentine to the consistency of medium bodied varnish; apply it with a good brush and rub it well into the grain and pores of the wood. When fairly well set, which is when it begins to show flat, you can rub it into the wood with a pad made by glueing leather onto a block of wood, always rubbing across the grain. For round moldings of balustrades have a long strip of leather to draw back and forth around the work. Fill only as much surface at a time as you can wipe off before it sets too hard to wipe off without rolling up. Wipe off with tow or excelsior shavings all the filler except that which is in the grain or pores, and be careful to have all the grain and pores level full of the filler, because upon that feature the

success of your work depends. All rubbing and wiping must be done across the grain. Give the filler all the time to dry you can, but never less than four or six hours, especially where the grain is rather open. When dry go over it lightly with No. 0 sandpaper to take off every particle of filler left on the surface. The cleaner you wipe off the filler the cleaner the finished job will be. If you desire your oak stained it is best to have the paste filler colored, and you can obtain it from the manufacturer in the natural, in antique, golden or weathered effect, so that you need not stain the wood first.

If you want to do high-grade work it is well to examine the filler surface with a magnifying glass to see if the pores are well filled and no pinholes visible. If there are such defects it is best to go over the surface with the filler a second time, but have it of thinner consistency than at first, and repeat the operation of rubbing, wiping off and sandpapering. Now you can apply one or two coats of white shellac, which, when hard, rub down with fine sandpaper; then put on a coat or two of hard oil finish or cabinet rubbing varnish and rub down with curled hair or hair cloth to dull the gloss. The shellac varnish may be omitted, but in that case an extra coat of varnish will be needed.

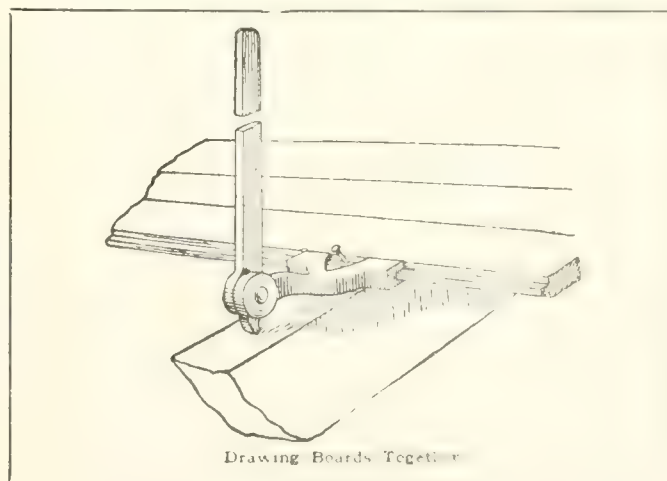
If you want merely a good eggshell gloss rub the last coat with raw oil and flour of pumice and wipe dry with soft cloth. For a good polish rub with flour of pumice and water first, then wipe dry and polish with rotten stone and sweet oil.

For high luster apply a coat of cabinet finishing varnish on the rubbed varnish surface and omit rubbing this.

### Lever For Laying Flooring

By S. J. Heath

Recently I had several thousand feet of matched flooring to lay and it necessitated some kind of a tool to draw the joints together on winding pieces. I designed a tool to meet the emergency which does the work to perfection. The sketch shows its construc-



Drawing Boards Together

tion and how it is applied to the boards. It consists of a lever to which a grooved and notched arm is pivoted. The groove fits the tongue on the boards and the notch provides a space for driving the nail.—Popular Mechanics.





In designing the placement of sound deadening felt, a firm of long experience in sound deadening problems should be secured, for if this is not done there is a liability of making sounding boards of floors instead of rendering them sound deadening.

### Garden Gate and Window Hood

A book issued by the Southern Cypress Manufacturers' Association, New Orleans, contains some interesting designs of trellises and arbors, two of which are shown herewith. These are beautifying and property



Fig. 1. Window Hood

enhancing additions to a home. The designs are by Burd F. Miller, Omaha, Neb.

Figs. 1 and 2 show a window hood, and Figs. 3 and 4 show a garden gate. All the necessary details, size of lumber, etc., are given on the line drawings. The

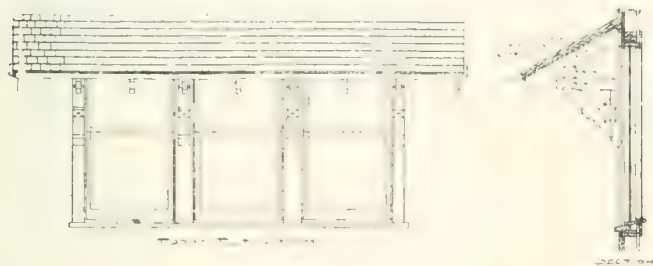


Fig. 2. Details of Window Hood

frame work of the hood is 4 x 4 and 2 x 4. The garden gate has 4 x 4 posts, 2 x 6 cross pieces on the roof, and 4 x 6 roof ratters with 1 x 1 1/2 in. lattice strips.

### Winners of Fox Supply Company's Competition

The Fox Supply Co., Brooklyn, Wis., held a contest recently, prizes being awarded to users of Fox floor scrapers for photographs of the best work accomplished with them. The first prize of \$25 was awarded to Mr. Henry M. Marten, 313 N. Johnson St., Bay City, Mich. The second prize of \$15.00 was awarded to Mr. Jacob H. Crist, 1551 West Market St., York, Penn. The third cash prize of \$10 was awarded to Mr. R. M. Walker, 712 Grant Building, Atlanta, Ga., and a fourth prize of \$5 (made an extra prize of \$5) was awarded to Mr. J. E. Powers, Hinckley, Ill.

A vote awarding honorable mention was given to the following, J. M. Philpot, Loyal, Wis.; Edward Bailey, Pigeon Cove, Mass.; R. C. Mellinger, Arcanum, Ohio; R. W. Henderson, Monticello, Iowa; William Waddell, Eagle Grove, Iowa; J. H. Bohn, 1311 Hall St., Elmira,

New York; John L. Shaw, Cochocton, Ohio; A. Demick, Miles, Iowa; Ferdinand Waddell, Dighton, Mass.

Although there are a large number of Fox floor scrapers in use in Canada, there were no pictures submitted from Canadian builders.

### Steel Square Pocket Book

The "Steel Square Pocket Book" by Dwight L. Stoddard, is a handy book of pocket size 3 x 5 inches, 160 pages and 150 illustrations, price 50 cents. It was prepared a few years ago and issued by the Industrial Book Co., 178 Fulton St., New York. It is a practical and handy treatise giving methods of using the carpenter's steel square.

The size of this book enables it to be carried in the



Fig. 3. Garden Gate

pocket, hence the carpenter can always refer to it for the method of finding the different cuts used in roof framing, stair work, hoppers, towers and bicycle tracks, arches, stairs; also directions for describing hexagons, octagons and other polygons, circles, ovals, ellipses, brace measurement, dividing a cone, solving examples

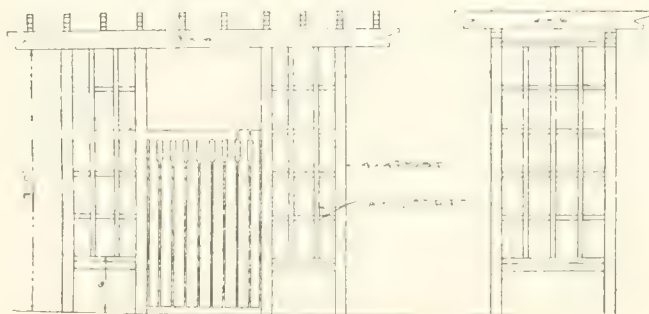
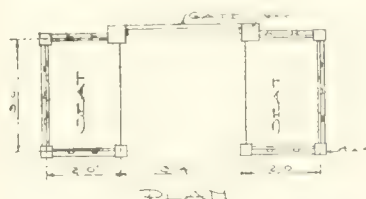


Fig. 4. Details of Garden Gate

in proportion, fascia and frieze cuts, besides directions in clear language for solving many other knotty problems by the use of the square. Copies may be had from the Industrial Book Co., New York, or from the Commercial Press, Toronto.



# Concrete Department

## Specification for Cement Top Floors

The Aberthaw Construction Co., Boston, specify as follows for cement top floors. This specification is for laying hard finish on new rough concrete, either palling or slabs supported by forms

Finish to be mixed one part of cement to two parts crushed trap rock or hard gravel screening, which will pass through a half-inch sieve, and from which the fine dust has been removed. This is to be thoroughly mixed in a mixing box or by machine mixer, with an amount of water to produce a plastic but not a sloppy consistency; spread on the under-concrete before either the finish or the under-concrete has had time to set, floated with a wooden float to a true level and then lightly troweled with a steel trowel as soon as possible to bring it to proper level and to smooth the top slightly. This will give a finish which is pebbly. It will not be dead smooth or slick like a sand finish.

After the finish has been troweled and has set sufficiently so that the covering will not mar the surface, it should be covered with sawdust, sand, cloths, or any other material which will hold water on it continuously. In building reinforced concrete work, difficulty will be caused by the sand and sawdust blowing about the work filling the forms, and generally getting in the way. In working around a textile mill there is usually plenty of old bagging, and in a paper mill there is usually plenty of old felts which can be borrowed for the purpose of preventing this.

The finish should be kept soaking wet for at least a week, or better for ten days. After two days it is possible to put up studs and do miscellaneous work on top of the new finish, provided it is not allowed to dry out.

## A Reinforced Concrete Fence

The Carnegie Steel Co. is doing considerable work in concrete for fences, telegraph poles, drinking fountains and many other small details of construction. The accompanying illustrations show a particularly good example of fence of which has been built approximately 550 feet, including seven gate posts.

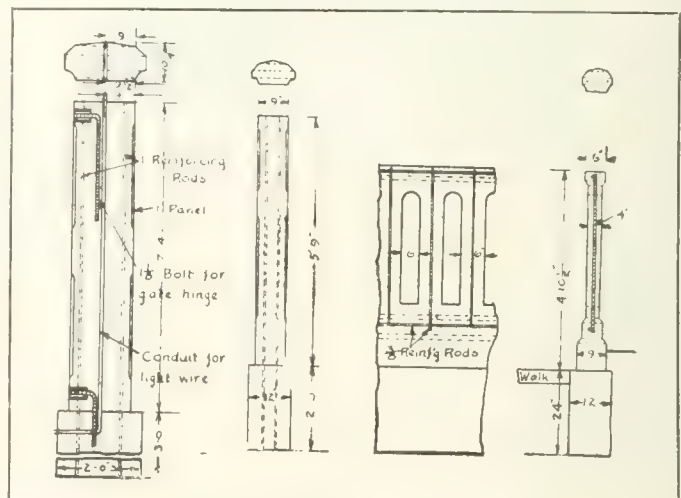
The post caps, panel caps and small posts were cast in collapsible box forms open on one side. They were oiled, plastered inside with 1:3 cement mortar and filled with a 1:2:3 gravel concrete, the reinforcing being placed as shown in the diagram.

The gate posts were built in position. A pit 2 feet square and 3 feet deep was filled with concrete, reinforcing bars placed and a collapsible wooden form built up. The form was filled with a 1:2:3 gravel concrete, poured wet and well spaded to bring mortar to the surface. A conduit was placed in the center of the post to carry the lighting wires and two bolts were inserted in the forms for hinges.

A trench was dug along the property line and the fence posts set in place and concreted into the sub-

base which was a 1:2:3 gravel concrete. The forms for the panel base were then laid from post to post, bolted together and filled with a 1:2:3 concrete mixture. The panel forms were then set on the base forms, bolted together and filled with a 1:3 mortar, mixed wet and well tamped. The reinforcing rods through the pickets were shoved into place after the concrete was poured.

All air holes and rough spots on the surface of the cast work were troweled smooth. After the concrete had set it was washed with a mixture of lye, alum, cement and water which gave it a whitish color which



Reinforced Concrete Fence

later turned to a light gray and has not checked nor crazed but holds a velvety and uniform tone throughout the entire fence.

The cost of the 557 feet of fence, including gateposts, was approximately 76 cents per foot.

## Reinforced Concrete as a Building Material\*

By H. D. Schutt, C.E.

Concrete alone is capable of supporting great weights in direct compression, but it is weak in tension, being able to support only about one-tenth as much in tension as in compression. Therefore, if it is desired to use concrete in a beam or slab, it is necessary the portion of such beam or slab which is in tension be reinforced, and that the reinforcement be placed in exactly the same position in which it will do the most good. In a beam freely supported at two points and uniformly loaded, the bending moment is a maximum of the middle of the beam, and the tension at that point is naturally a maximum, but at the bottom fibres of the beam while the compression is a maximum at the top fibres of the middle of the beam. Therefore, the steel should be placed as closely as pos-

\*From a paper read before the convention of Building Inspectors, Calgary.

sible to the bottom, only a layer of concrete or at least 1½ inches being below the steel for fire protection. But if that beam enters a column or passes over one or more supports, it ceases to be a simple beam and becomes either a fixed or continuous beam. Then there is a tensional stress in the top fibres of such a beam where it enters or passes over a support and for economic design reinforcement must be placed there accordingly. In design, the action of a floor slab may be taken as the same as that of a very wide and thin beam.

But there are other stresses in a beam that have to be provided for besides tension. There is the question of web stresses or internal shear. This is provided for by stirrups of mild strap steel or heavy steel wire bent into form either of a U or a rectangle which theoretically should be inclined at an angle of 45 degrees toward the support. In practice they are usually placed vertically for convenience except in the case of patented systems, although a slight excess of steel is thereby made necessary. The spacing of these stirrups is usually a function of the depth of the beam. It is also common practice to bend a part of the reinforcing bars up at either the ⅓ or ¼ points of the span at an angle of from 30 to 45 degrees, and bring the bar back along the top of the beam, thus aiding in the top reinforcement against negative bending moment, as well as taking care of a part of the internal shear of the beam.

The shear at the supports is usually more than amply provided for, both by the area of the concrete and by the regular reinforcing steel.

#### Strength of Concrete.

The strength of concrete varies with the quality of materials, the quantity of cement per cubic yard of concrete and the density of the mixture. Therefore, the strongest as well as the most economical mixture consists of an aggregate containing a large variety of sizes graded so as to fit into each other and leave the smallest possible amount of voids, with enough cement to slightly more than fill these voids in the aggregate. Thus a graded crushed rock containing the run of the crusher up to a stone that will pass through, say, a 1-inch ring, and a sharp sand graded from coarse to fine, will give much better results than an aggregate of uniform size.

The steel used should be preferably a mild steel, having an ultimate strength of from 55,000 lbs. to 65,000 lbs. per square inch. A high carbon steel is sometimes more economical on account of its higher ultimate strength, which is from 90,000 lbs. to 115,000 lbs. per square inch, but on account of its brittleness it must be placed with great care, and should not be used by an inexperienced designer or contractor.

As to mixtures, no leaner mixture than a 1:2:4 should be used for reinforced concrete unless great care has been taken in the selection and testing of materials and testing of the cement.

The usual working value of stresses in concrete are as follows:—

In compression from 500 lbs. to 700 lbs. per square inch, depending upon the richness of the mixture. In tension from 1-10 to ⅓ as much as in compression. In shear about ¼ as much as in tension. These values give factors of safety of from 3 to 6.

Too much care cannot be taken in the selection of materials for reinforced concrete. Of course the cement must be satisfactorily tested. The fact that the

manufacturer "guarantees" his particular brand of cement should not suffice, but independent tests should be made as to fineness, time of initial and final set, density and tensile strength attained in 1 day and 7 days. It is not usually possible to make a 28-day test, valuable as it is on small jobs, but where the work is to extend over a period of time, a 28-day test should always be required. Samples for testing should be taken from at least every 10th barrel. Each car load should be piled separately to permit of taking samples, and the samples from each car load should be tested separately. Cement should be stored in waterproof building, with the floor raised from 6 inches to 8 inches off the ground to permit a free circulation of air underneath.

The stone for the aggregate should be examined, and a soft or porous stone or one showing many cleavage planes, or a stone of a shaley formation, should be rejected. The crushed rock must be piled on planks or platforms to keep it free from the earth. Otherwise, a wheelbarrow load of the scrapings of stone and earth might be thrown into a batch that was to be placed at just the point in your beam or column that will be subjected to the greatest stress.

The sand should be sharp and gritty and practically free from loam or vegetable matter.

#### Concrete Building is Fireproof.

If the reinforcing steel is properly protected, a reinforced concrete building is absolutely fireproof. Not an instance has been reported of the failure by fire of a reinforced concrete structure in which the steel was properly protected, although there were many structures in both Baltimore's and San Francisco's fire swept districts. One inch is the greatest depth to which the concrete was found to be damaged, although in some instances water from a 2½-inch nozzle was turned on when the outside of the concrete was at almost red heat. The only damage seen in such cases was a spalling or chipping off from ½ inch to 1 inch in thickness.

#### Interesting Concrete Test

An interesting test of a concrete column was made under the auspices of the National Association in the new 10,000,000-pound testing machine—the largest in the world—at the Bureau of Standards. The column tested consisted of a concrete cement, two parts sand, and four parts crushed stone, reinforced by seven 11-16-inch round vertical rods and a helix of ½-inch wire, having a pitch of 3 inches. The column was 16 feet long and had a diameter of 27 inches within the helical reinforcement and an outside diameter of 30-inches, thus giving an inch and a half covering for the wire reinforcement. The first evidence of stress on the column appeared when a load of 1,300,000 pounds (2,275 pounds per square inch) was put on. The outer covering of concrete started to spall off and continued to do so until the load had been increased about 500,000 pounds. Complete failure occurred when the load had reached 1,950,000 pounds, or a load of 3,400 pounds per square inch. Just before this load had been reached the wire helix broke near the top of the column and the vertical reinforcement began to buckle near the top, and the whole column bulged until it was about 6 inches out of line. Considering that the column was only twenty-five days old when tested this is a very satisfactory showing.



## Coloring Concrete

The latest report of the National Association of Cement Users recommended only certain mineral pigments that should be used for obtaining tinted mortars for concrete or stucco surfaces. These pigments are given in the following list:—

Grey	Bright Red	Blue
Slate	Brown	Green
Red	Yellow	Violet

Lampblack, manganese dioxide.

Lampblack, manganese dioxide.

Red iron oxide.

English red oxide.

Brown roasted iron oxide, brown ocher.

Ocher.

Ultramarine.

Chromium oxide, ultramarine green.

Violet oxide of iron.

The amount used should be small, owing to the danger of impairing the strength of the resulting mortar. The limit should be 5 per cent. by weight to that of the cement. Even this amount of certain colors which differ little from that of cement, such as yellows and reds, does not produce a marked change from that of neat cement. Lampblack is best for darkening, and to lighten the color, use lime. The coloring constituents can be used dry or in a paste, but it is most convenient for mixing to use the dry form, which should be thoroughly mixed with the dry mortar before adding water.

### The Addition of Coloring Matter.

If tinting is to be done the coloring matter can be added to the cement-wash just mentioned, but the result is not so lasting as pigments mixed along with the stucco. Free lime in the concrete when moist chemically combines with many of the ordinary color pigments, and also attacks any organic matter in the plaster. The use of paint, therefore, containing linseed oil should be avoided. The percentage of coloring matter to be added to the plaster depends upon the tint required. This may be a source of danger, because a high percentage of some pigments weakens the plaster. Yellow ochre can be added up to 8 per cent., and gives a bright tan color. Yellowish brown or buff can be obtained from 5 per cent. yellow ochre and 2½ per cent. of permanganate brown. Black shades are obtained by using a small percentage of lampblack or carbon. For red, red oxide or iron are the only colors that can be safely employed. A strong, highly-priced oxide, whereby a small percentage only is necessary, is better than a weaker, cheaper grade. Black iron oxide will give a bluish shade of black. Brown is a color not readily obtainable except at the expense of the plaster's strength.

Iron oxide can be used; the lime in the concrete acts on ferric chloride or ferric sulphate, giving a reddish-brown color—a deposit of ferric hydroxide; but to obtain this 20 to 30 per cent. by weight of coloring matter is required. Green is another color difficult to obtain. The only green pigment that will stand the lime action is chromium oxide, which is an expensive mineral pigment. The coloring values of the cheaper grades are very low. By mixing blue and yellow, green can be produced, but the trouble is to obtain a good strong blue that will withstand the lime. A good blue is ultramarine blue, but it has a very poor coloring power when mixed with other pigments. It will, however, stand the action of the lime.

## Building Permits Granted in 1912

Eastern Cities.		1912.	1911.	1910.
Bellefleur	\$	450,000	\$	310,000
Berlin		842,613		356,091
Brantford		1,167,105		613,860
Galt		490,000		282,334
Geolph		388,499		513,690
Halifax		579,775		508,836
Hamilton		5,491,800		4,255,730
Kingston		645,774		314,569
London		1,136,108		1,036,880
Maisonneuve		2,685,828		1,195,120
Montreal		19,641,955		14,579,952
Ottawa		3,621,850		2,997,610
Outremont		1,582,000		1,317,700
Owen Sound		310,000		189,000
Peterborough		465,905		345,372
Preston		337,160		244,375
St. Catharines		811,335		265,435
Stratford		367,233		103,532
Sydney		656,111		495,642
Toronto		27,401,761		24,374,539
Westmount		1,824,369		1,435,682
Windsor		1,098,063		739,515
Western Cities.				
Brandon		1,166,214		1,024,529
Calgary		20,394,220		12,907,638
Dauphin		135,425		58,255
Edmonton		14,446,819		3,672,260
Fort William		4,211,285		3,077,860
Lethbridge		1,358,250		1,033,380
Medicine Hat		2,836,239		743,272
Moose Jaw		5,275,797		2,413,736
Nanaimo		321,422		159,461
Nelson		273,865		166,700
New Westminster		1,634,518		1,124,587
North Battleford		896,970		240,080
Port Arthur		2,494,179		595,180
Prince Albert		2,006,925		921,595
Red Deer		387,640		257,020
Regina		8,047,309		5,099,340
St. Boniface		1,251,012		1,131,735
Saskatoon		7,640,530		4,960,286
Vernon		446,142		202,982
Vancouver		19,428,432		17,652,642
Victoria		8,208,155		4,026,315
Winnipeg		20,475,350		17,716,750
Total 22 Eastern Cities		\$71,995,244		\$56,475,464
Total 22 Western Cities		123,336,698		79,185,603
Total East and West..		\$195,331,942		\$135,661,067
North Bay	\$	462,675		
Sault Ste. Marie		738,975		
Sudbury		526,663		
Verdun		872,000		
Welland		469,744		
Point Grey		3,004,815		
South Vancouver		2,550,000		
Swift Current		791,014		
Weyburn (9 months)		766,660		
Yorkton		735,966		
St. John (approx.)		650,000		
				\$207,890,454

\*These are official returns for Brandon, but 1912 total includes \$229,437 for asphalt block pavement. Omitting this amount, Brandon shows a decrease, the only one in Western division.—Reproduced by courtesy of "Financial Post."

## Errata in article "Six Room House, etc."

The last paragraph of this article (Page 14) should read:—

The cost of the house was \$3,500 made up of an original price of \$3,250 for house and land, and the following extras: Mantle in living room, \$40; stationary laundry tubs, \$35; oak stair, oak floors, ash trim and ash doors in the house proper, and laundry partitions and combination fruit cupboard in the basement, \$175. The house was bought before starting excavations and plans were changed to suit the purchasers.

# Brick Work and Plastering

## Quick-Working Derrick for Construction Work

*By James F. Hobart*

An enterprising builder who had a lot of low two-storey structures to erect was badly handicapped by the lack of a quick-working derrick whereby he could hoist the beams, plates and roof trusses, set posts and columns, etc., quicker than could be done with the ordinary A-hoist so much used by builders. After a bit of calculating a shaft seven feet long and two inches in diameter was procured and fitted with a 10-in. cast-iron truck wheel at either end, a pin and washer outside of each wheel preventing their coming off the shaft.

Two 4-in. by 6-in. timbers, each 7 ft. long, were bolted together at one end, spread out A-shaped with a 3-in. by 4-in. scantling between the close together ends. The far ends were spread about 6 ft. apart and bolted to either end of the shaft above mentioned and just inside the truck wheels. The ends of the timbers were beveled off parallel with the truck wheels.

A 6-in. by 6-in. sill was bolted to the wide apart ends of the A-frame a few inches back of the shaft, and a mast, consisting of two 2-in. by 6-in. and one 2-in. by 10-in. planks, spiked together, was erected, as shown herewith. The 3-in. by 4-in. scantling was bolted to the upper end of the spiked-up mast. The scantling thus served to stiffen the mast fore and aft, while two more 3-in. by 4-in. scantlings were fastened to either end of the 6-in. by 6-in. sill and in turn bolted to the mast near its top end.

The upper end of the mast was also fitted with three pieces of plank, two vertical, and bolted to and between the 2-in. by 6-in. mast scantlings. The other piece of short 2-in. by 6-in. plank was spiked on top of the two vertical pieces seen at the top of the mast. These pieces of plank were just far enough apart to permit a pair of sheaves to be placed between them, one as far front as possible, the other sheave equally as far toward the rear of the masthead. This made a very strong masthead housing, which was also weather proof as much as necessary.

The mast and the two side braces were additionally stiffened by bolting on a lateral girt about six feet above the A-frame, which served as sills for the hoist. Between the girt and the 6-in. by 6-in. cross sill short studs were bolted in place and to these studs was attached the winding drum and cranks from the old A-frame derrick.

As arranged, the greater part of the weight of this device is at the wide-apart end of the A-frame, and comparatively little weight is carried by the narrow rear end of the frame. Two methods are open to the maker of one of these derricks. One way is to let the narrow end of the frame be dragged around upon the lower end of the 3-in. by 4-in. scantling, which serves as a fore-and-aft brace for the upper portion of the derrick-hoist. The other way is to place beneath the apex of the A-frame a large caster, the wheel of which is at least four inches in diameter.

Such a construction will permit the hoist to be readily moved in any direction by simply prying the wide end of the A-frame ahead, the caster following readily, no matter in which direction the hoist is being moved. When the frame rests upon the end of the scantling instead of upon a caster it is, of course, more work to move the hoist around, but it will have greater steadiness without the caster and will be less likely to move out of place through external stress.

The hoist is fitted with a single line about one inch in diameter, which leads from the winding drum directly to the first top-mast sheave, then over the second sheave, thence downward to the hook, which is fitted with a counterweight sufficient to cause the rope to overhaul when it is unwound from the drum.

The cost of this machine was so small that the owner dismantled it after the completion of each job, replacing the drum upon the A-frame derrick and keeping the base of the tall derrick intact for use when the device was needed upon another job.—Building Age.

## Turning Old Brick Into Capital

*By H. F. Porter*

In wrecking an old building the good bricks recovered usually are marketable at a figure but slightly below that for new common brick. But by far the great portion of wrecked brick walls, as a rule, consists of broken brick, disposable ordinarily only for filling-in material. One enterprising builder, however, found a better way to dispose of these fragments of bricks. The basement walls and footings of his new structure were of massive concrete. He hit upon the scheme of using the brick bats as bulk-swellers in this concrete. So as the soft, semi-fluid mixture of cement, sand and crushed rock was chuted into the forms, he had a man feed into the flowing mass at regular intervals shovelfuls of the brick bats.

The saving was two-fold: each yard of concrete was made to go a little further, thus reducing the unit cost per yard slightly, and the trouble and expense of carting away the brick debris was saved. Against this was the labor of the man shoveling in the bats. But practically an equivalent amount of labor would have been required to load them into wagons to take away. The only precaution he had to take was to have the fragments thoroughly wetted before any went into the concrete.—System.

## Terra Cotta a General Favorite

*On Account of its Adaptability, its Beauty and its Fireproof Qualities, it is Being Specified for High-Class Buildings*

"Largely on account of its excellent qualities as a fireproofing material and the readiness with which it lends itself to intricate and beautiful designs for building ornamentation, terra cotta is being more generally



specified for the higher class construction than ever before," says a writer in the "Architect and Engineer." He discusses the matter at some length as follows: "One point urged by architects in favor of terra cotta is the fact that it can be easily matched with any colored brick or stone and concrete.

"The modern employment of terra cotta is a revised taste and the result of laudable efforts of architects to get lasting and honest ornamentation in lieu of sham effects procured through the use of stucco and galvanized sheet iron.

"In faithfully made and vitrified terra cotta, we have the great and only lasting triumph of man over natural productions, for properly and thoroughly burned terra cotta will pass through the centuries, being not only fireproof, but also in all architectural employments practically time proof and indestructible. Good construction, next utility, and last decoration are the order in which the design should be carried out. The last requires an artist who is inventive enough to make the ornament harmonize with the purpose of the object and decoration in the place it is to occupy.

"Terra cotta is clay, burned and reburned in the process of manufacture. It is said its sound-proof properties are superior to those of wood, either the porous or the closely aggregated material being used to line the walls to prevent sound from going through or to preserve a surface of neutral character, as the case may be, thus assisting and modifying sound.

"A building faced with enameled terra cotta may be washed without difficulty, and this fact has been demonstrated frequently in many cities.

"The durability of terra cotta has been proved by specimens, preserved to the present day," one writer says, 'conveying records of the earliest nations known to history.' Its effectiveness in absolutely protecting the steel skeletons of 'sky scrapers' was demonstrated by the Baltimore fire. High compressive strength, combined with clearness of surface and lightness, add to its value.

"The material was used for decorative purposes in Greece, Rome, medieval Italy, Pompeii and Etruria, most of the supply coming from the clay plains of Northern Italy. From those early designs came the latter ones in Great Britain, from the fifteenth century to the eighteenth, at which time its use was discontinued.

"Little 'stock' terra cotta is kept by manufacturers and the architects are given absolute freedom in carrying out their ideas on paper. These sketches are submitted for bids to the various manufacturers, exactly as building contract bids are asked. The lowest bidder makes models according to the design, then photographs are sent to the architects who make alterations or corrections."

### Effect of the New Order-in-Council

A very decided fillip is likely to be given the manufacture of bricks in the west by the recent order-in-council emanating from Ottawa anent the leasing and administering lands containing limestone, marble, slate, gypsum, marl, sand and in fact, any building stone in the provinces of Manitoba, Saskatchewan and Alberta. Certain localities in the province of British Columbia have been included so as to cover the leasing of Dominion lands which have clay deposits. The lessees of a clay location must erect buildings on the land within two years of the date of such occupation, these buildings to be of more than \$10,000 in value. After the second year the lessee must manufacture not less

than 100,000 bricks or their equivalent in some form of clay manufacture. Failing to comply his lease may be cancelled. For the man looking for a start for his capital such order must seem a good one but to the already established brick manufacturer in the west the merits are doubtful in these days of "trusts" and "combinations."—Toronto Saturday Night.

### Razing Chimneys

Razing high brick chimneys is accomplished in certain parts of England by first replacing the brick over a section of the base by wooden underpinning. About two-thirds of the base area is thus removed up to a height of from 5 to 6 feet, and subsequently the wooden underpinning is set on fire. Experience has shown that there is a slight leaning of the chimney toward the underpinned side, and as soon as a crack appears in the masonry on the opposite side the fire is applied. As the chimney falls it partially telescopes, due to the shock produced by dropping into the void left by the burned timbers.

### Some Substantial Sand-Lime Brick Buildings

The group of buildings on the opposite page show some of the buildings manufactured by the Berg Machinery pre-hydration system and are brick of a very satisfactory quality which increase with age. They therefore assure safety for life and property.

The increasing demand for building material has brought sand-lime brick to the attention of builders more quickly than would otherwise have been possible. The result of their use has been very satisfactory. In choosing the brick, however, the method of manufacture should be investigated. A system of manufacture should be used that insures the slacking of all the lime before it is pressed into brick and goes into the cylinder for hardening. This is of the greatest importance. Otherwise the lime will not do the proper binding and acts as a rupture instead of a flux.

The cut of buildings made of sand-lime brick on the opposite page is reproduced by courtesy of the Berg Machinery Co., Toronto, whose brick machines were used in the manufacture of the brick used in the construction of these buildings.

### Alberta Association of Architects Meeting in Edmonton

The Alberta Association of Architects held a two-days' session here Jan. 23 and 24, and elected the following officers for the year:—

President, R. W. Lines; honorary president, G. M. Lang; first vice-president, James Henderson; second vice-president, J. J. Ogara; honorary secretary, W. D. Cromarty; honorary treasurer, G. H. McDonald. Council—W. P. Major, G. M. Lang, George Fordyce, R. P. Barnes, C. L. Gibbs.

The next annual meeting will be held in Edmonton, January, 1914.

"Are you willing to live with me in a cottage?" "Yes, dear; provided it is a cute little cottage with a dozen rooms, three baths, steam heat, a butler, cook, dining-room and upstairs girl."





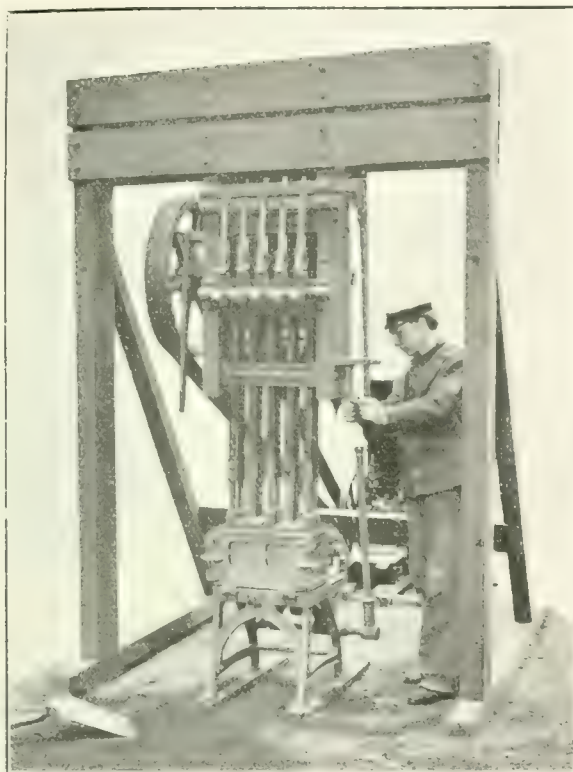
Samples of building- manufactured by Berg Machinery pre hydrated system



# Price List of Building Materials - Revised to Date

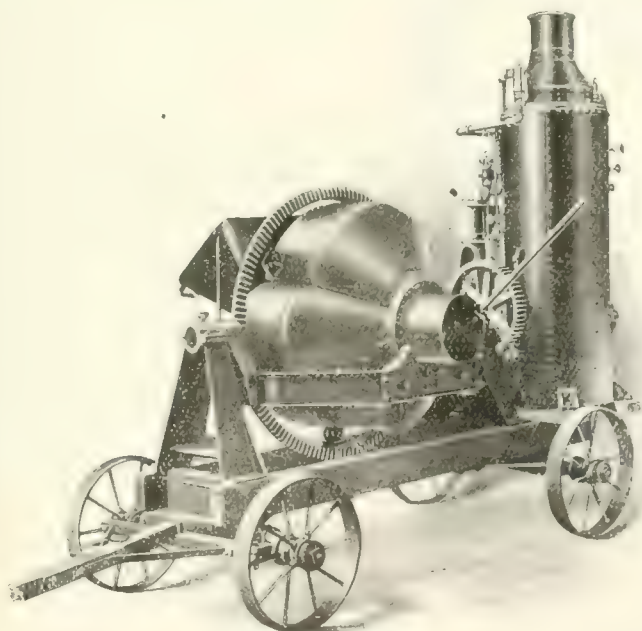
Hemlock Lumber	PRICE AT MONTREAL	PRICE AT TORONTO	PRICE AT WINNIPEG	PRICE AT VANCOUVER
2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$20.00	\$25.00	\$29.00	
2 x 4 in. to 2 x 12 in., 16 ft.	22.00	26.00	29.00	
2 x 4 in. to 2 x 12 in., 18 ft.		29.00	29.00	
1 in. Hemlock No. 1	20.00	25.00 to 27.00		
No. 1 hemlock decking	23.00	25.00		
No. 2 hemlock dimension and 1 in.		16.00 to 18.00		
<b>Pine</b>				
1 in. common pine, 8 to 12 in. wide, rough	\$27.00 to 30.00	\$28.00 to 30.00		
2 in. white pine, bill stock	29.00 to 33.00	29.00 to 33.00		
5 x 8 and 10 in. pine shelving	36.00 to 40.00	36.00 to 40.00		
5 x 12 pine shelving	42.00	45.00		
No. 1 white pine flooring	40.00	37.00		
No. 1 spruce flooring	30.00	30.00		
No. 1 pine decking, D2S	40.00	33.00		
pine decking		30.00		
No. 1 pine V. or beaded sheeting	37.00	39.00		
No. 2 pine V. or beaded sheeting	31.00	35.00		
<b>Pine Trim for Paint Finish</b>				
4 in. casing, per 100 ft.	\$2.00	\$2.00		
5 in. casing, per 100 ft.	2.00	2.30		
8 in. pine base, per 100 ft.	3.50	3.48		
10 in. pine base, per 100 ft.	4.25	4.54		
4 in. pine window stool, per 100 ft.	2.75	2.75		
<b>Shingles, Lath Roofing, Etc.</b>				
XXX B. C. cedar shingles		\$3.60 per M	\$4.00 & 3.50 per M	\$2.20 & 2.10 per M
N. B. Extras		3.50		
N. B. Clears		2.90		
No. 1 pine lath	5.00	4.75 per M	5.75 per M	2.25 per M
No. 2 pine lath	4.50	4.25		
No. 1 spruce lath	4.00	4.50		
Metal lath			.16 to .20	
Roofing felt (2 ply)		3.50 per square	2.50 per roll	
<b>Cedar Posts—Fence</b>				
5 in. at small end	5c. foot	.25 each		
7 in. at small end	7c. foot	.35 each		
<b>Hardware</b>				
Nails, wire, common	\$2.35 base keg	\$2.40 cwt.	\$3.70 per keg	\$3.25 per keg
Nails, cut, common	2.55 " "	2.75	3.70	4.25
Sash weights, cast iron	1.50 per 100 lbs.	1.65		
Tarred felt paper	.40 roll	.45 roll	.90 per roll	.90 per roll
Building paper	.30 roll		.75	.70
Insulating paper			1.25	
<b>Brick, Tile, Terra Cotta, Sewer Pipe</b>				
No. 1 dry pressed red brick	19.50	\$18.00 per M	\$25.00 to 50.00	\$45.00 per M
No. 1 dry pressed buff bricks	20.50	18.00	25.00 to 50.00	45.00
Red stock bricks	11.00	12.00	13.00	13.00
Grey stock bricks		11.00		
Wire cut bricks for foundation work		11.00		
Porous terra cotta bricks		15.00	\$15.00 per M	
No. 1 enamelled bricks, all colors, from		80.00 to 150.00	100.00	
Fire brick	25.00		45.00	45.00
Roofing tile			.15 per ft.	
Sewer pipe, 4 inch	10c. foot		.08½ per ft.	.14 per ft.
Sewer pipe, 6-inch	15c. foot		.16½ per ft.	
<b>Cement, Plaster, Stone, Etc.</b>				
Cement (bags extra)	1.80 bbl.	(\$1.80 bbl.	\$2.50 per bbl.	\$3.00 per bbl.
Sand, for cement or brick work	1.00 ton	(1.55 m. car lots)	1.75 a yard	
Lime	12.00	1.15 a yard	.32 per bu.	1.25 per bbl.
Hydrated lime	13.00	.30 cwt.	12.00 per ton	4.25 per bbl.
Mortar color	5.00 bbl.	10.00 ton	.05 per lb.	
Plaster of paris	2.35	black, 3; red, 2	4.00 per bbl.	4.50 per bbl.
Crushed stone, 2 in.	1.50 ton	2.50 bbl.	2.50 per yard	
Crushed stone, 1 in.	1.60	1.45	2.75	
Crushed stone, ¾ in.	1.75	1.50	2.75	
Hardwall plaster	\$12.50 neat	\$12.00 neat	12.00 per ton	14.50 per ton
	6.00 sanded ton	6.00 sanded		
Gravel	1.85 ton		1.85 per yard	
Hair (plaster)	.03 per lb.	.04 lb.	1.25 per bale	14.50 per ton

**NOTE TO READERS.** We would be glad to have suggestions from readers as to the extension or modification of this list.



Ideal Block Machine equipped with Power Tamper

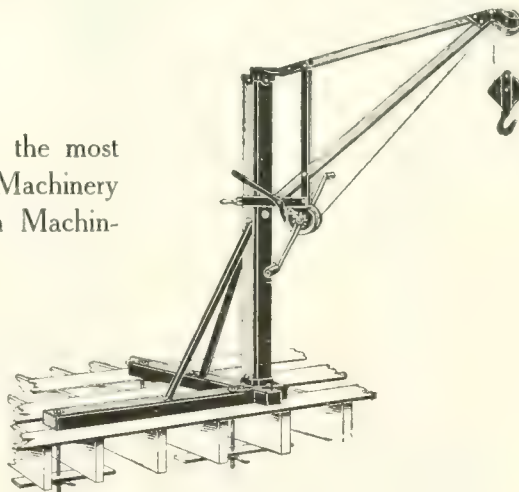
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Batch Mixer

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Dept. C. B.



# Hutchinson Combination Woodworker

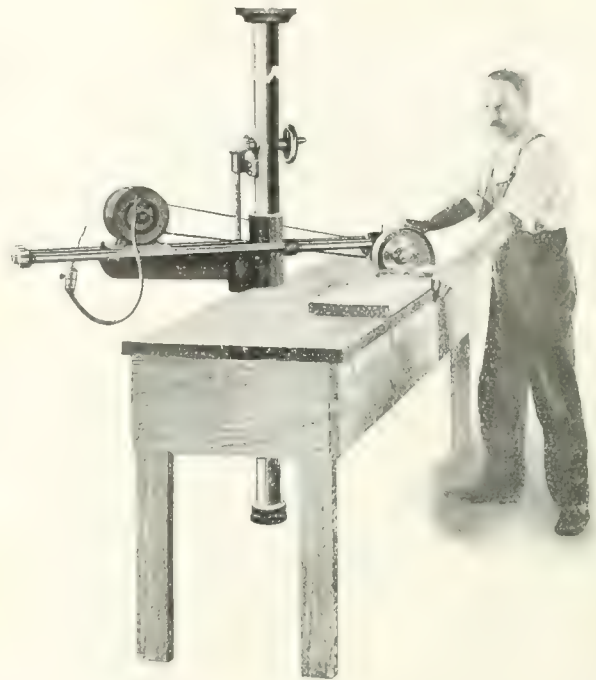
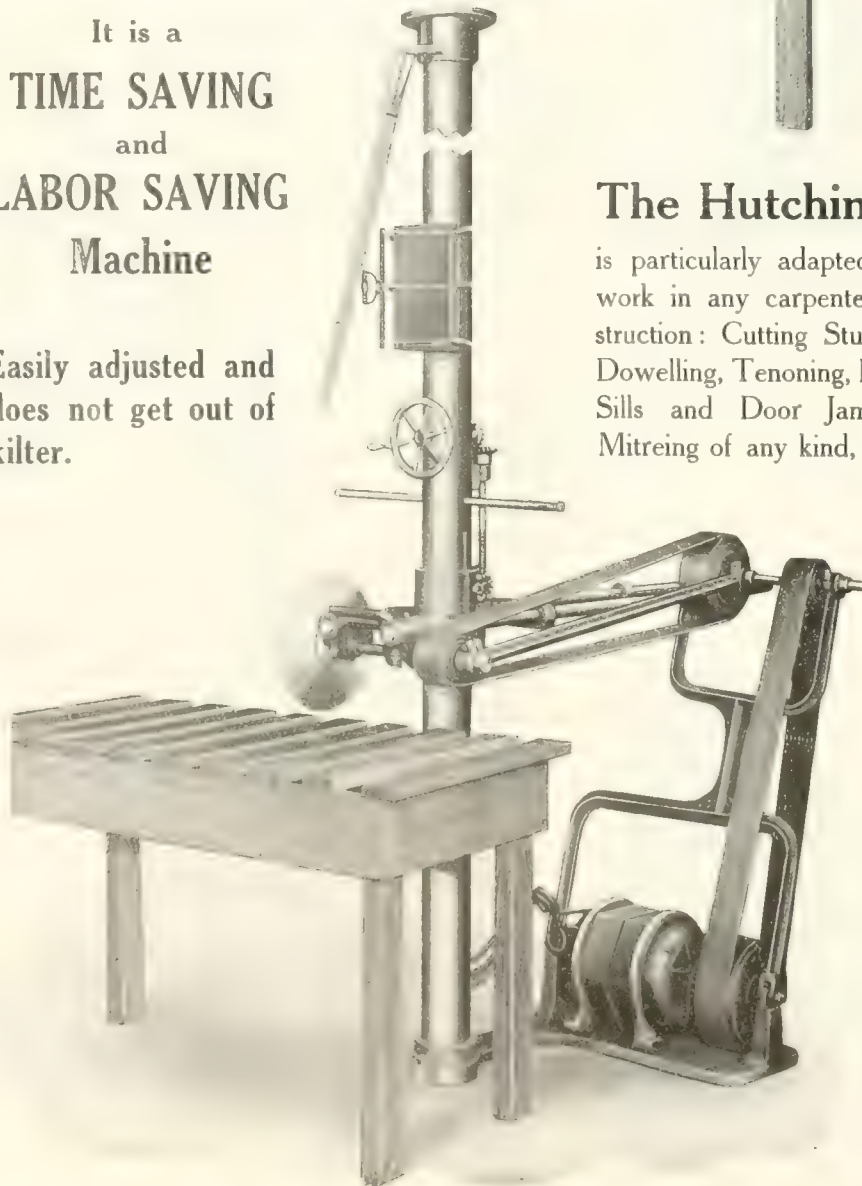
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**TIME SAVING  
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is particularly adapted for the following every-day work in any carpenter shop or building under construction: Cutting Studs, Rafters, Braces; Boring for Dowelling, Tenoning, Dadoing, Pulley Stiles, Window Sills and Door Jambs; Routing Stair-Stringers, Mitreing of any kind, Tool Grinding, etc. It can be

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¶ The Hutchinson Woodworker can be set up on any job or in a shop within an hour.

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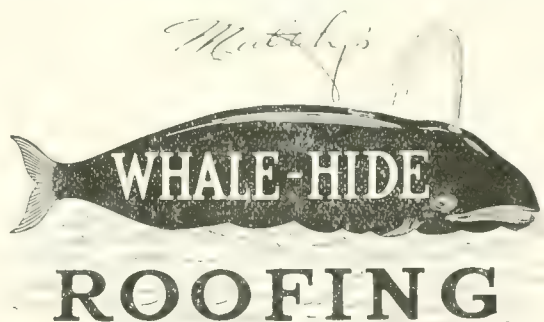
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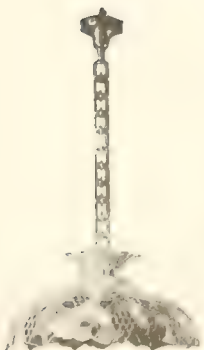
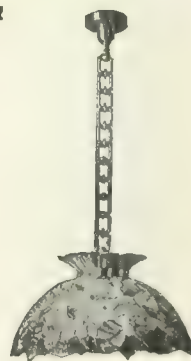
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Toronto Plate Glass Importing Co., Toronto.

**Thimbles.**  
Metal Shingle & Siding Co., Preston, Ont.

**Tool Grinders.**  
Luther Grinder Mfg. Co., Milwaukee, Wisconsin.

**Tool Sharpeners.**  
Luther Grinder Mfg. Co., Milwaukee, Wisconsin.

**Urinals.**  
Standard Ideal Co., Port Hope, Ont.  
Valley, Galvanized.

**"V" Crimp Roofing and Siding.**  
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Galt Art Metal Co., Galt, Ont.  
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Ideal Concrete Machinery Co., London, Ont.

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Alabastine Co., Paris, Ont.

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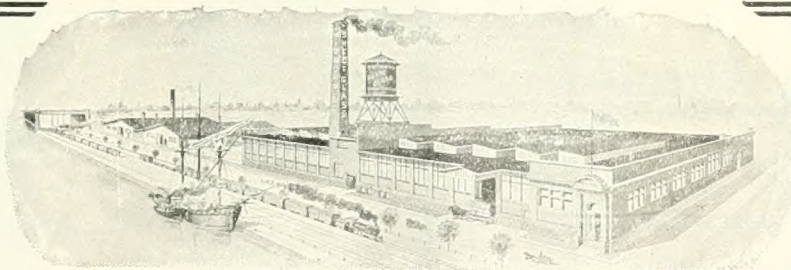
**Weather Strips.**  
William Pease Co., Hamilton.

**Window Trimmings.**  
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Parks Ball Bearing Machine Co., Cincinnati, Ohio.

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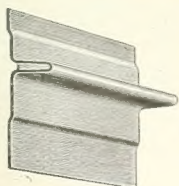
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### Index to Advertisements

	Page
Alabastine Company, Limited	43
Asbestos Manufacturing Co.	10
Braid & McCurdy	i.f.c.
Batts, Limited	i.b.c.
Canada Lumber Co.	o.f.c.
Chicago Technical College, Chicago, Ill.	43
Consumers' Gas Company	45
Consolidated Plate Glass Co.	10
Dennis Wire & Iron Works Co.	10
Dominion Roofing Manufacturing Co., Limited	41
Double Claw Hammer	7
DeLaplant, L. A., Limited	12
Elliot Woodworker Co.	6
Fox Supply Company, Brooklyn, Wisconsin	43
Freek Clark & Co.	45
Galt Art Metal Co.	46
Georgian Bay Shook Mills	3
Hart, J. A., Company	45
Hurley Machine Co.	12
Hutchison, Mackintosh	40
Ideal Concrete Machinery Co.	39
Kepplinger, G. J., Dwight, Ill.	6
Meadows, Geo. B.	11
Metal Shingle & Siding Co.	4-5
Monarch Manufacturing Co.	8
Neilson, J. L. & Co.	7
Oshkosh Manufacturing Co.	6
Parks Ball Bearing Machine Co., Cincinnati	8
Peace Co., William, Limited	44
Sand & Supplies Limited	12
Standard Ideal Co., Limited	41
Stewart Mfg. Co., James, Limited	i.f.c.
Stinson-Reeb Builders' Supply Co.	9
Sturgeons Limited	8
Success Business College	44
Thornhill Co., W. H.	8-44
Toronto Plate Glass Importing Co.	6
Winnipeg Wire & Iron Works	11
Weber Manufacturing Co., West Allis, Wis.	7
Wettlaufer Bros.	o.b.c.

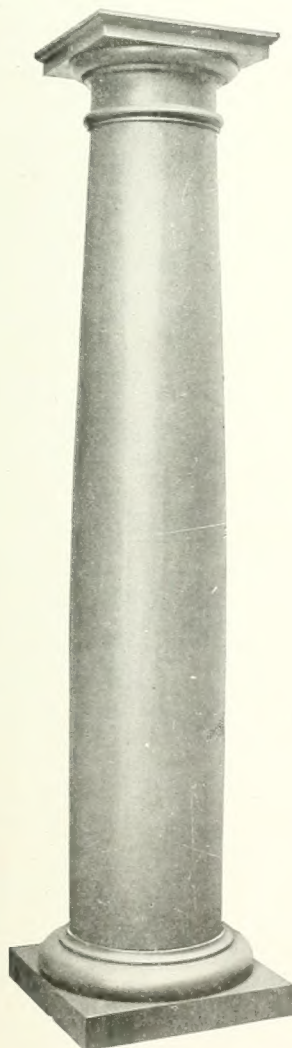


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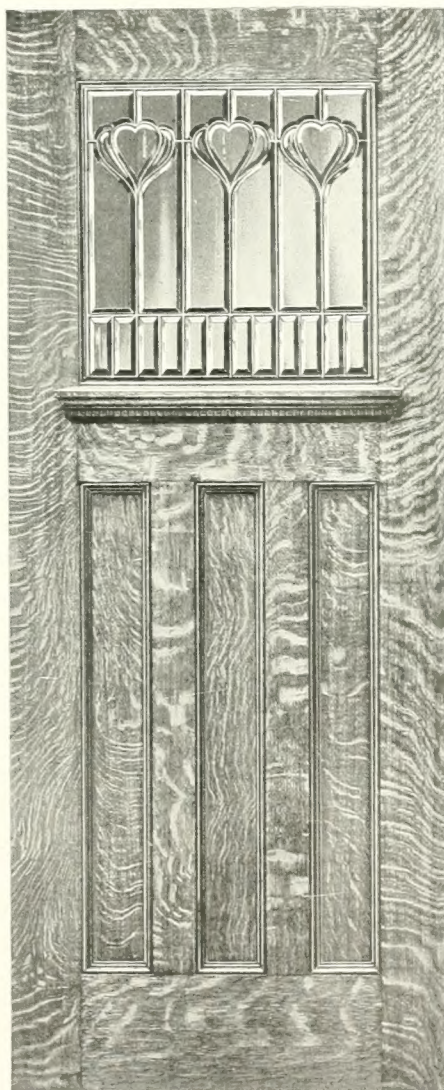
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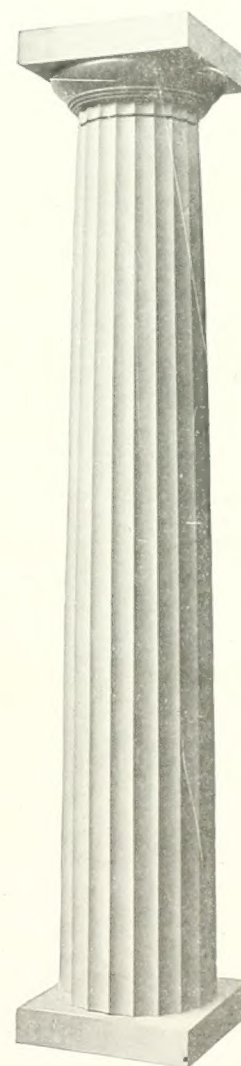
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Length	8in.	10in.	12in.
4 feet	Price \$2.25	\$3.00	\$5.00
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6 feet	Price 2.50	3.40	5.75
8 feet	Price 3.10	4.20	6.75
9 feet	Price 3.50	4.75	7.50
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Design B.L. No. 6

Length	10in.	12in.	14in.
6 feet	Price \$6.80	\$8.85	\$10.60
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9 feet	Price 9.25	10.75	12.90
10 feet	Price 9.60	11.30	13.55

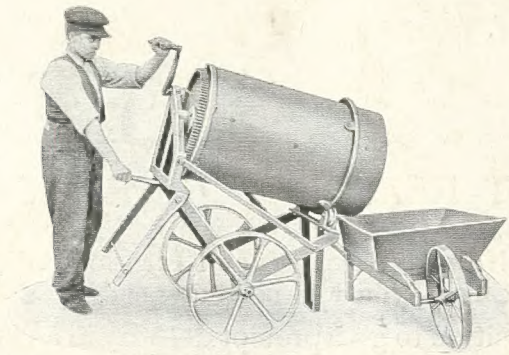
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for  
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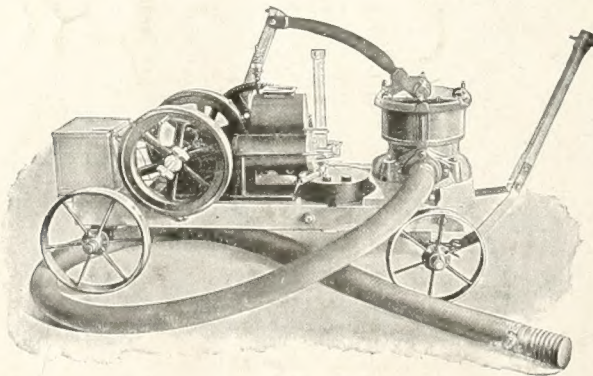
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It will certainly pay you to give up mixing Concrete by  
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¶ This pump will do  
the work of two men  
at a cost of not more  
than 35 cents a day.



¶ This direct saving of  
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will soon pay the cost  
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